

Lucent Technologies
Bell Labs Innovations



DEFINITY[®]

Enterprise Communications Server

Release 8.2

Installation and Test for Single-Carrier Cabinets

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Comcode 108678699
Issue 1
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Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

Lucent Technologies Fraud Intervention

If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call Technical Service Center Toll Fraud Intervention Hotline at 1 800 643-2353 or contact your local Lucent representative.

Federal Communications Commission Statement

Part 15: Class A Statement. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E.

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 Rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Canadian Department of Communications (DOC)

Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Trademarks

See the preface of this document.

Ordering Information

Call: Lucent Technologies BCS Publications Center
Voice 1 800 457-1235 International Voice 317 322-6416
Fax 1 800 457-1764 International Fax 317 322-6699

Write: Lucent Technologies BCS Publications Center
2855 N. Franklin Road
Indianapolis, IN 46219

Order: Document No. 555-233-120
Comcode 108678699
1, April 2000

For additional documents, refer to the section in "About This Document" entitled "Related Resources."

You can be placed on a standing order list for this and other documents you may need. Standing order will enable you to automatically receive updated versions of individual documents or document sets, billed to account information that you provide. For more information on standing orders, or to be put on a list to receive future issues of this document, contact the Lucent Technologies Publications Center.

European Union Declaration of Conformity

The "CE" mark affixed to the DEFINITY® equipment described in this book indicates that the equipment conforms to the following European Union (EU) Directives:

- Electromagnetic Compatibility (89/336/EEC)
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI

For more information on standards compliance, contact your local distributor.

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by Product Documentation Development, Lucent Technologies, Denver, CO.

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About This Book

This document provides procedures and information for installing and initially testing the DEFINITY® Release 8.2si and Release 8.2si with memory system configurations. This document also provides information on power and peripheral equipment that connects directly to a system.

This document covers information related to DEFINITY ECS Release 8.2. For details about changes for Release 8.2, refer to *DEFINITY Enterprise Communications Server Release 8.2, Change Description*.

The following conventions describe the systems referred to in this document.

- The word *system*, is a general term encompassing Release 8.2 and includes references to the DEFINITY Enterprise Communications Server.
- DEFINITY Systems are called: Release 8; Release 8si + memory; and Release 8si.
- All occurrences of Release 8si, and Release 8si + memory are called Release 8si unless a specific configuration is required to differentiate between product offerings.
- Information in this document is applicable for Release 5 through Release 8, unless otherwise specified.
- DEFINITY Enterprise Communications Server is abbreviated DEFINITY ECS.
- All physical dimensions in this book are in English (foot pound second) (FPS) followed by metric (centimeter grams second) (CGS) in parenthesis. Wire gauge measurements are in AWG followed by the diameter in millimeters in parenthesis.

Related Documents

The following documents are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 8 Administration for Network Connectivity*
- *DEFINITY Enterprise Communications Server Release 8 System Description*
- *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*
- *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*
- *AT&T Network and Data Connectivity Reference*
- *BCS Products Security Handbook*
- *DEFINITY Wireless Business System Users Guide*
- *DEFINITY Wireless Business System Installation and Test Guide*
- *DEFINITY Wireless Business Systems System Interface*
- *DEFINITY Enterprise Communications Server Release 8 Installation and Test for Multicarrier Cabinets*
- *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*
- *DEFINITY Enterprise Communications Server Release 8 Upgrades and Additions for R8si*
- *DEFINITY Enterprise Communications Server Release 8 Upgrades and Additions for R8r*
- *DEFINITY Enterprise Communications Server Release 8 Installation for Adjuncts and Peripherals*

How to Order Documentation

In addition to this book, other description, installation and test, maintenance, and administration documents are available. A complete list of DEFINITY documents can be found in the *Business Communications System Publications Catalog*.

This document and any other DEFINITY documentation can be ordered directly from the Lucent Technologies Business Communications System Publications Fulfillment Center at 1-317-322-6791 or toll free at 1-800-457-1235.

How to Comment on This Document

Lucent Technologies welcomes your feedback. Please fill out the reader comment card found at the front of this manual and return it. Your comments are of great value and help improve our documentation.

If the reader comment card is missing, FAX your comments to 1-303-538-1741 or to your Lucent Technologies representative, and mention this document's name and number, *DEFINITY Enterprise Communication Server Release 8 Installation and Test for Single-Carrier Cabinets*.

Trademarks

This document contains references to the following Lucent Technologies trademarked products:

- ACCUNET®
- AUDIX®
- Callmaster®
- CallVisor®
- CONVERSANT®
- DEFINITY®
- FORUM™
- MEGACOM®
- SYSTIMAX®
- TRANSTALK™

The following products are trademarked by their appropriate vendor:

- Audichron® is a registered trademark of Audichron Company.
- LINX™ is a trademark of Illinois Tool Works, Inc.
- Music Mate® is a registered trademark of Harris Corporation.
- PagePac® is a registered trademark of Harris Corporation, Dracon Division.
- PORTA™ Systems is a trademark of PORTA Systems Corporation.
- Shockwatch® is a registered trademark of Media Recovery, Incorporated.
- Styrofoam® is a registered trademark of Styrofoam Corporation.
- Tiltwatch® is a registered trademark of Media Recovery, Incorporated.
- Zone Mate® is a registered trademark of Harris Corporation.

Standards Compliance

The equipment presented in this document complies with the following standards (as appropriate):

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia AS3260
- IEC 825
- IEC 950
- UL 1459
- UL 1950
- CSA C222 Number 225
- TS001

LASER Product

The DEFINITY ECS may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote Expansion Port Network (EPN). The LASER device operates within the following parameters:

Maximum Power Output: -5 dBm

Wavelength: 1310 nm

Mode Field Diameter: 8.8 microns

CLASS 1 LASER PRODUCT

IEC 825 1993



CAUTION:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Contact your Lucent Technologies representative for more information.

Electromagnetic Compatibility Standards

This product complies with and conforms to the following EMC standards (as appropriate):

- Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment, EN55022 (CISPR22), 1993
- EN50082-1, European Generic Immunity Standard
- FCC Parts 15 and 68
- Australia AS3548



NOTE:

The system conforms to Class A (industrial) equipment. Voice terminals meet Class B requirements.

- Electrostatic Discharge (ESD) IEC 1000-4-2
- Radiated radio frequency field IEC 1000-4-3
- Electrical Fast Transient IEC 1000-4-4
- Lightning effects IEC 1000-4-5
- Conducted radio frequency IEC 1000-4-6
- Mains frequency magnetic field IEC 1000-4-8
- Low frequency mains disturbance IEC 1000-4-11

European Union Standards

Lucent Technologies Business Communications Systems declares that the DEFINITY equipment specified in this document bearing the “CE” mark conforms to the European Union Electromagnetic Compatibility Directives.

The “CE” (Conformité Européenne) mark indicates conformance to the European Union Electromagnetic Compatibility Directive (89/336/EEC) Low Voltage Directive (73/23/EEC) and Telecommunication Terminal Equipment (TTE) Directive (91/263/EEC) and with i-CTR3 Basic Rate Interface (BRI) and i-CTR4 Primary Rate Interface (PRI) as applicable.

The “CE” mark is applied to the following Release 8 products:

- Global AC powered Multi-Carrier Cabinet (MCC)
- DC powered Multi-Carrier Cabinet (MCC) with 25 Hz ring generator
- AC powered Single-Carrier Cabinet (SCC) with 25 Hz ring generator
- AC powered Compact Single-Carrier Cabinet (CSCC) with 25 Hz ring generator
- Enhanced DC Power System

Security Issues

To ensure the customer of the greatest security possible, Lucent Technologies offers services that can reduce toll fraud liabilities. Contact your Lucent Technologies representative for more security information.

Login security is an attribute of the DEFINITY Enterprise Communications Server (ECS) software. Advise customers that their existing passwords expire 24 hours after the upgrade. Also explain that the new passwords must conform to strict requirements.

Where to Call for Technical Support

Use the following telephone numbers for the region in which the system is being installed:

	Telephone Number
DEFINITY Helpline (feature administration and system applications)	1-800-225-7585
Lucent Technologies Toll Fraud Intervention	1-800-643-2353
Lucent Technologies National Customer Care Center	1-800-242-2121
Lucent Technologies Corporate Security	1-800-822-9009
Streamlined Implementation (for missing equipment)	1-800-772-5409
USA/Canada Technical Service Center	1-800-248-1234
ITAC	1-303-804-3777
Lucent Technologies Centers of Excellence	
Asia/Pacific Regional Support Center	65-872-8686
Western Europe/Middle East/South Africa	44-1252-77-4800
Central/Eastern Europe	361-345-4334
Central/Latin America Caribbean	1-303-804-3778
Australia	61-2-9352-9090
North America (INADS Database Administration)	1-800-248-1111

Antistatic Protection



CAUTION:

When handling circuit packs or any components of a DEFINITY System, always wear an authorized wrist ground strap. Connect the strap to an approved ground such as an unpainted metal surface on the DEFINITY System.

Remove/Install Circuit Packs



CAUTION:

The control circuit packs with white labels cannot be removed or installed when the power is on. The port circuit packs with gray labels (older version circuit packs had purple labels) can be removed or installed when the power is on.

Federal Communications Commission Statement

Part 68: Statement

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Lucent Technologies attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. On the rear of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.



NOTE:

REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Off/On Premises Station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID Trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO Trunk	02GS2	0.3A	RJ21X
CO Trunk	02LS2	0.3A	RJ21X
Tie Trunk	TL31M	9.0F	RJ2GX
1.544 Digital Interface	04DU9-B,C	6.0P	RJ48C, RJ48M
1.544 Digital Interface	04DU9-BN,KN	6.0P	RJ48C, RJ48M
120A2 Channel Service Unit	04DU9-DN	6.0P	RJ48C

If the terminal equipment (DEFINITY[®] System) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-248-1234. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

It is recommended that repairs be performed by Lucent Technologies certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

Install and Connect the Cabinets

1

This chapter describes how to install the Release 8si Single-Carrier Cabinets.

Multicarrier Cabinet installation procedures are provided in *DEFINITY Enterprise Communications Server Release 8 Installation and Test for Multicarrier Cabinets*. Floor plans and equipment layouts for typical system installations are provided in *DEFINITY Enterprise Communications Server Release 8 System Description*.

Check Circuit Packs

Ensure all circuit packs are fully inserted into the proper slots according to the Customer Service Document (CSD). Report any discrepancies in circuit pack type or quantity to your Lucent Technologies representative. For detailed circuit pack descriptions, refer to *DEFINITY Enterprise Communications Server Release 8 System Description*.

Release 8si systems contain a RISC-based TN790B Processor circuit pack.

Check Customer's Order

Check the customer's order and the shipping packing lists to confirm all equipment is present. If any equipment is missing, report the information to your Lucent Technologies representative. Check the system adjuncts for damage and report all damage according to local shipping instructions.

How to Correct Shipping Errors

Defective equipment and over-shipped equipment must be red-tagged and returned per the nearest Material Stocking Location (MSL) instructions.

Short-shipped reports must also be directed to the nearest Material Stocking Location (MSL). Contact the appropriate location for specific instructions. For Streamlined Implementation in the United States, call 1-800-772-5409.

Unpack and Inspect

1. Unpack the cabinets from the shipping material and inspect for damage. Report any shipping damage according to local shipping instructions.
2. Open and remove the front door and rear panels from the cabinet.
3. Verify the label near the circuit breaker on the power supply toward the rear of each cabinet corresponds to the local voltage type.



DANGER:

*If the label is different than the voltage type at the site, notify your Lucent Technologies representative immediately for a replacement power supply. Do **not**, under any circumstances, connect an incorrect power supply to a power source.*

Install Single-Carrier Cabinets

This section describes how to position and stack the cabinets for all reliability configurations.



CAUTION:

Lifting the cabinet may require two people, as it may weigh as much as 130 pounds (60 kilograms). Use caution to avoid injury.

Before beginning the cabinet installation, check the location of the AC/DC power receptacle. The receptacle must be on a separately fused circuit *not* controlled by a wall switch. It must be located within 10 feet (3 meters) of the cabinet, and should be located outside the Main Distribution Frame (MDF) area.

Refer to the serial numbers and lettered designation strips in the Customer Service Document (CSD) when stacking the cabinets. If earthquake protection is required, skip to [“Install Earthquake Protection”](#). Return to this section when finished.



CAUTION:

System grounding must comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electric code in the country containing the equipment.

Position Cabinets (Standard Reliability)

One Cabinet Stack (Processor Port Network)

Perform this step first for *all* standard reliability cabinet installations.

1. Place Control Cabinet A (J58890L) on the floor in the position determined when the room layout was planned.
2. Set Port Cabinet B (J58890H) on top of Control Cabinet A.
3. Set Port Cabinet C (J58890H) on top of Port Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. If additional cabinet stacks are being installed, continue to the next section. If not, proceed to [“Approved Grounds” on page 1-5](#).

Two Cabinet Stacks (Expansion Port Network)

1. Place the Expansion Control Cabinet (J58890N) on the floor next to Control Cabinet A. See previous instructions.
2. Set Port Cabinet B (J58890H) on top of the Expansion Control Cabinet.
3. Set Port Cabinet C (J58890H) on top of Port Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. If three cabinet stacks are being installed, continue to the next section. If not, proceed to [“Approved Grounds” on page 1-5](#).

Three Cabinet Stacks (Expansion Port Network)

1. Place the second Expansion Control Cabinet (J58890N) on the floor next to the first Expansion Control Cabinet. See previous instructions.
2. Set Port Cabinet B (J58890H) on top of the Expansion Control Cabinet.
3. Set Port Cabinet C (J58890H) on top of Port Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. Proceed to [“Approved Grounds” on page 1-5](#).

Position Cabinets (High or Critical Reliability)

One Cabinet Stack (Processor Port Network)

Perform this step first for *all* high or critical reliability cabinet installations.

1. Place Control Cabinet A (J58890L) on the floor in the position determined when the room layout was planned.
2. Set Duplicate Control Cabinet B (J58890M) on top of Control Cabinet A.
3. Set Port Cabinet C (J58890H) on top of Duplicate Control Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. If additional cabinet stacks are being installed, continue to the next section. If not, skip to [“Approved Grounds”](#).

Two Cabinet Stacks (Expansion Port Network)

1. Place the Expansion Control Cabinet (J58890N) on the floor next to Control Cabinet A See previous instructions.
2. Set Port Cabinet B (J58890H) on top of the Expansion Control Cabinet.
3. Set Port Cabinet C (J58890H) on top of Port Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. If additional cabinet stacks are being installed, continue to the next section. If not, skip to [“Approved Grounds”](#).

Three Cabinet Stacks (Expansion Port Network)

1. Place the second Expansion Control Cabinet (J58890N) on the floor next to the first Expansion Control Cabinet. See previous instructions.
2. Set Port Cabinet B (J58890H) on top of the second Expansion Control Cabinet.
3. Set Port Cabinet C (J58890H) on top of Port Cabinet B.
4. Set Port Cabinet D (J58890H) on top of Port Cabinet C.
5. Proceed to [“Approved Grounds”](#).

Approved Grounds

An approved ground is the closest acceptable medium for grounding the building entrance protector, entrance cable shield, or single-point ground of electronic telephony equipment. If more than one type of approved ground is available on the premises, the grounds must be bonded together as required in Section 250-81 of the National Electrical Code.

Grounded Building Steel — The metal frame of the building where it is effectively grounded by one of the following grounds: acceptable metallic water pipe, concrete encased ground, or a ground ring.

Acceptable Water Pipe — A metal underground water pipe, at least 1/2-inch (1.27 cm) in diameter, in direct contact with the earth for at least 10 feet (3 m). The pipe must be electrically continuous (or made electrically continuous by bonding around insulated joints, plastic pipe, or plastic water meters) to the point where the protector ground wire is connected. A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete encased ground, or a ground ring. If these grounds are not available, the water pipe ground can be supplemented by one of the following types of grounds:

- Other local metal underground systems or structures — Local underground structures such as tanks and piping systems
- Rod and pipe electrodes — A 5/8-inch (1.58 cm) (solid rod) or 3/4-inch (1.9 cm) (conduit or pipe) electrode driven to a minimum depth of 8 feet (2.43 m).
- Plate electrodes — Must have a minimum of 2 square feet (0.185 square m) of metallic surface exposed to the exterior soil

Concrete Encased Ground — An electrode encased by at least 2 inches (5.08 cm) of concrete and located within and near the bottom of a concrete foundation or footing in direct contact with the earth. The electrode must be at least 20 feet (6.1 m) of one or more steel reinforcing bars or rods 1/2-inch (1.27 cm) in diameter, or at least 20 feet (6.1 m) of bare, solid copper, 4 AWG (5.189 mm²) wire.

Ground Ring — A buried ground that encircles a building or structure at a depth of at least 2.5 feet (0.76 m) below the earth's surface. The ground ring must be at least 20 feet (6.1 m) of 2 AWG (6.543 mm²), bare, copper wire.

APPROVED FLOOR GROUNDS

Approved floor grounds are those grounds on each floor of a high-rise building suitable for connection to the ground terminal in the riser closet and to the cabinet equipment single-point ground terminal. Approved floor grounds may include the following:

- Building steel
- The grounding conductor for the secondary side of the power transformer feeding the floor
- Metallic water pipes
- Power feed metallic conduit supplying panel boards on the floor
- A grounding point specifically provided in the building for the purpose



WARNING:

If the approved ground or approved floor ground can only be accessed inside a dedicated power equipment room, then connections to this ground should be made by a licensed electrician.

Connect Cabinet Grounds

To connect the cabinet grounds on the J58890R DC Power Cabinet and the Single-Carrier Cabinets, perform the following steps. To connect the cabinet grounds on AC-powered cabinets, skip to [“Grounding AC-Powered Cabinets Only” on page 1-11](#).

DC-Powered Cabinets Only



CAUTION:

System grounding shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable code at the installation site.



NOTE:

Before connecting the cabinets to the approved ground, determine the best method of grounding. Also, locate the approved ground as close to the cabinets as possible.



NOTE:

The ground plates and cabinet clips are installed later in this chapter.

Connect DC Power Cabinet Ground

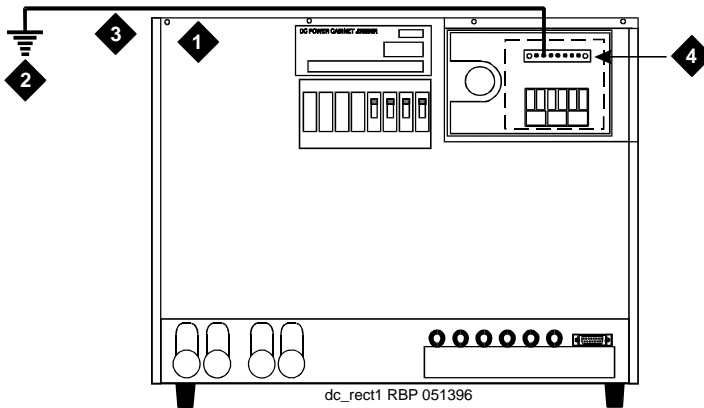


Figure Notes

- | | |
|-----------------------|--|
| 1. DC Power Cabinet | 3. 1 AWG (#70) (7 mm ²) Wire |
| 2. To Approved Ground | 4. Ground Discharge Bar |

Figure 1-1. DC Power Cabinet Grounding

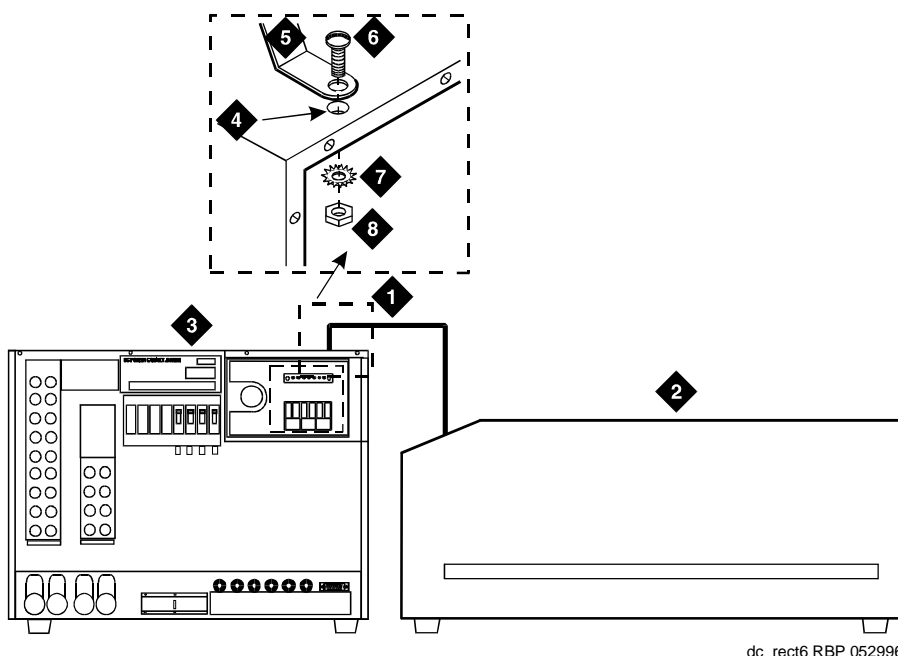
1. At the DC Power Cabinet, connect a 1 AWG (#70) (7 mm²) ground wire to the GROUND DISCHARGE bar. See [Figure 1-1](#).
2. Route the ground wire out of the cabinet and terminate it on the approved ground.



CAUTION:

The approved ground must be connected using the correct gauge wire, terminated with a listed clamp, and identified with a grounding tag (FORM 15657NR, or equivalent).

Connect DC Battery Cabinet Frame Ground



dc_rect6 RBP 052996

Figure Notes

- | | |
|---|--------------------------------------|
| 1. 6 AWG (#40) (4mm ²) Wire | 5. Terminal Lug (Part of D-18181895) |
| 2. DC Battery Cabinet | 6. Pan Head Slotted Screw |
| 3. DC Power Cabinet | 7. Star Washer |
| 4. Grounding Hole in Top of Cabinets | 8. Hex Nut |

Figure 1-2. Frame Ground Wiring Between Power Cabinets

1. Cut a length of 6 AWG (#40) (4 mm²) wire long enough to reach between the DC Power Cabinet and the DC Battery Cabinet. See [Figure 1-2](#).
2. Crimp a terminal lug on the each end of the wire. The terminal lugs are furnished as part of D-181895, kit of parts.
3. At the DC Battery Cabinet, attach the 6 AWG (#40) (4 mm²) wire to the frame ground mounting hole using a pan head slotted screw, star washer, and hex nut. Tighten the screw securely.
4. Route the opposite end of the wire to the DC Power Cabinet.
5. Attach the 6 AWG (#40) (4 mm²) wire to the mounting hole in the top of the cabinet. Use a pan head slotted screw, star washer, and hex nut. Tighten the screw securely.

Connect DC Power Distribution Unit Ground

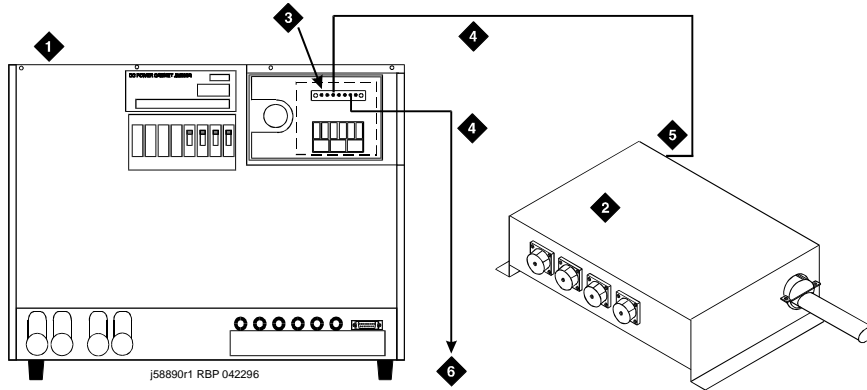


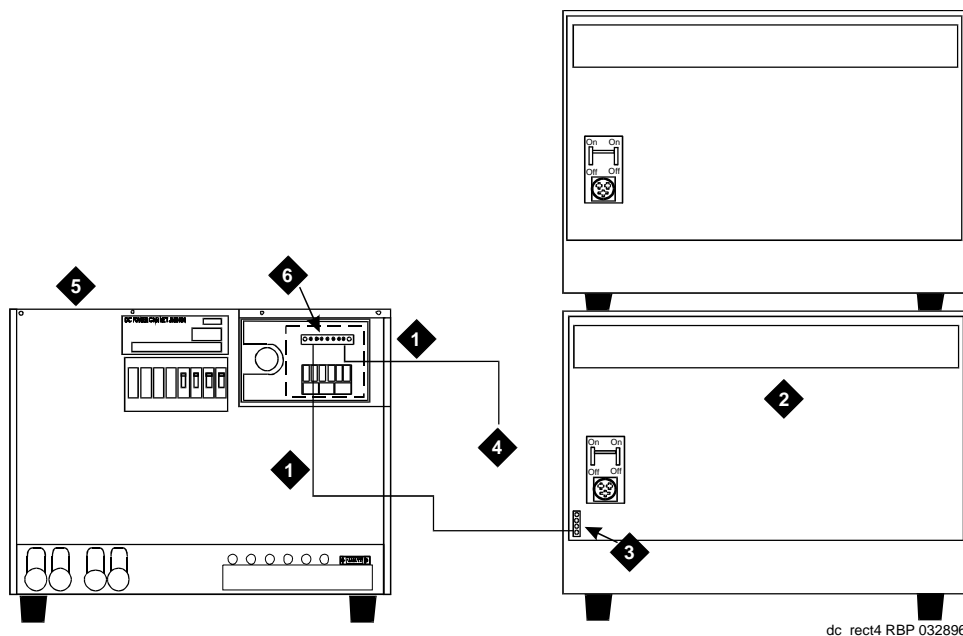
Figure Notes

1. DC Power Cabinet
2. DC Power Distribution Unit
3. Ground Discharge Bar
4. 6 AWG (#40) (4 mm²) Wire
5. GRD Connector Terminal on DC Power Distribution Unit
6. To Additional DC Power Distribution Units (If Required)

Figure 1-3. DC Power Distribution Unit Ground

1. Measure and cut a length of 6 AWG (#40) (4 mm²) wire long enough to reach between the GROUND DISCHARGE bar in the DC Power Cabinet and the GRD connector on the DC Distribution Unit. See [Figure 1-3](#).
2. At the DC Power Cabinet, connect the 6 AWG (#40) (4 mm²) wire to the GROUND DISCHARGE bar.
3. Route the opposite end of the wire to the DC Power Distribution Unit and connect the wire to the GRD connector.
4. Repeat Steps 2 and 3 for each remaining DC Power Distribution Unit.

Connect Single-Carrier Cabinet Ground



dc_rect4 RBP 032896

Figure Notes

1. 6 AWG (#40) (4 mm²) Wire
2. Control Cabinet (Cabinet A)
3. Single-Point Ground Block
4. To Additional Control Cabinets in Same Room
5. DC Power Cabinet
6. Ground Discharge Bar

Figure 1-4. Single-Carrier Cabinet Ground

1. Cut a length of 6 AWG (#40) (4 mm²) wire long enough to reach between the GROUND DISCHARGE bar on the DC Power Cabinet and the single-point ground block on the Control Cabinet (bottom cabinet in [Figure 1-4](#)).
2. At the DC Power Cabinet, connect the wire to the GROUND DISCHARGE bar.
3. Route the wire to Control Cabinet and connect to the single-point ground block.
4. Repeat for each Control Cabinet in the system room (duplicated Control Cabinet and Expansion Control Cabinet).

Grounding AC-Powered Cabinets Only



CAUTION:

System grounding shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable code at the installation site.



NOTE:

Before connecting the cabinets to the approved ground, determine the best method of grounding. See [“Approved Grounds” on page 1-5](#). Also, locate the approved ground as close to the cabinets as possible.



NOTE:

The ground plates and cabinet clips are installed later in this chapter.

1. Measure and cut a length of 6 AWG (#40) (4 mm²) wire long enough to reach between the cabinet stack single-point ground block and the approved ground. See [Figure 1-5](#).
2. At the lower left rear of the Control Cabinet (Cabinet A), connect the 6 AWG (#40) (4 mm²) ground wire to the cabinet stack single-point ground block.
3. Run the ground wire to the approved ground and attach securely.
4. Repeat Steps 1-3 for each Expansion Control Cabinet.



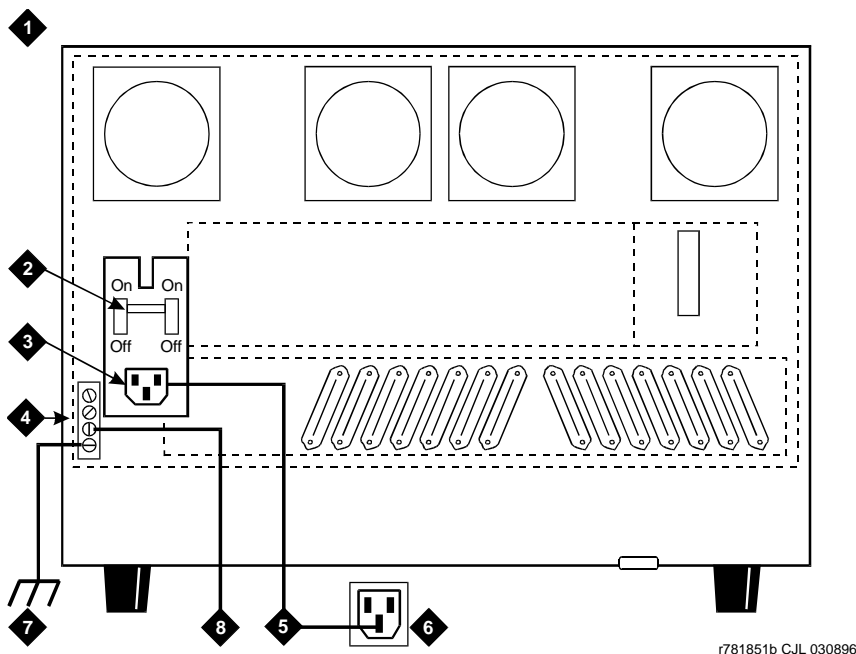
NOTE:

If the Expansion Control Cabinet is remotely located from Cabinet A (in a separate room or building), run the 6 AWG (#40) (4 mm²) cabinet ground wire to an approved protective ground.

5. At Cabinet A, connect a 10 AWG (#25) (2.5 mm²) wire to the single-point ground block. The 10 AWG (#25) (2.5 mm²) wire must be long enough to reach the telecommunications cables at the rear of the system cabinets, follow these cables to the Main Distribution Frame (MDF), and to terminate at the Coupled Bonding Conductor (CBC).

The Coupled Bonding Conductor (CBC) wires are installed and terminated in [Chapter 2, “Install Telecommunications Cabling”](#).

Single-Carrier Cabinet Ground



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Figure Notes

- | | |
|--|---|
| 1. Cabinet Stack 1 Control Cabinet A | 6. National Electrical Manufacturers Association (NEMA) 5-15 or 5-20 Receptacle or Equivalent |
| 2. Circuit Breaker | |
| 3. AC Power Receptacle | |
| 4. Cabinet Stack Single-Point Ground Block | 7. 6 AWG (#40) (4 mm ²) Ground Wire to Approved Ground |
| 5. 8-Foot (2.5 Meters) Power Cord | 8. 10 AWG (#25) (2.5 mm ²) Wire to Coupled Bonding Conductor |

Figure 1-5. Typical AC Power and Ground Layout — Rear

Connect AC Power

Set the Ringer Frequency

The default ringer frequency setting on the 1217A power supply for North America is 20 Hz and the international setting can be either 20 Hz or 25 Hz. To set the ringer frequency on the 1217A power supply:



CAUTION:

When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.

1. Power down AUDIX and any other circuit pack that might be running an application.
2. Power down the cabinet.
3. Release both latches on the power supply and slide the unit out of the cabinet.
4. Observe the ring frequency switch label on the side of the power supply and locate the switch on the bottom.
5. Set the ring frequency select switch to the appropriate frequency setting.
6. Slide the power supply back into the slot and ensure that both latches snap closed.

Connect the Power Cord into the Power Receptacle

1. Provide one receptacle per Single-Carrier Cabinet.
2. Verify the circuit breakers are OFF.
3. Plug the cabinet AC power cord into the AC power receptacle on the rear of each cabinet.
4. Plug the opposite end of each AC power cord into the appropriate AC power receptacle in the equipment room.



NOTE:

Loop the excess cord and tie wrap it to the back cover to prevent accidental unplugging.

Connect DC Power

The following procedures apply to both the Processor Port Networks (PPN) and Expansion Port Networks (EPN).

DC Power Connections

A 30 foot (9 m) cable connects to each cabinet. A special connector on one end of the cable is plugged into the cabinet power connector. The cable must be cut to length and terminated inside the J58890R DC Power Cabinet.

Each rectifier assembly can supply up to 50 Amps of DC current. A minimum of two rectifiers are installed in each DC Power Cabinet to supply a total of 100 Amps. A third rectifier assembly can be installed and is used as a backup (N+1). Each Single-Carrier Cabinet can pull up to 18 Amps. Up to three DC Power Cabinets can be stacked to supply power to Single-Carrier Cabinet stacks.

[Figure 1-6](#) shows a typical power and ground layout for a DC-powered system without a J58890CG DC Power Distribution Unit. The J58890CG is required if the distance between the DC Power Cabinet(s) is greater than 30 feet (9 m). [Figure 1-7](#) shows a typical power and ground layout for a DC-powered system containing a DC power distribution unit.

Connect AC Power to DC Power Cabinet

1. Ensure the associated circuit breakers at the AC power panel are OFF.
2. Have an electrician connect AC power leads to the rectifiers using the instructions provided with the rectifiers in the DC Power Cabinet. Each rectifier should have its own branch circuit. Terminate leads on the AC INPUT terminal block of each rectifier.



CAUTION:

Power is present in the cabinet even if the AC power cable is unplugged. Turn off the main circuit breaker on the front of the cabinet when procedures require ALL power to be removed from the cabinet.

DC Power Connections

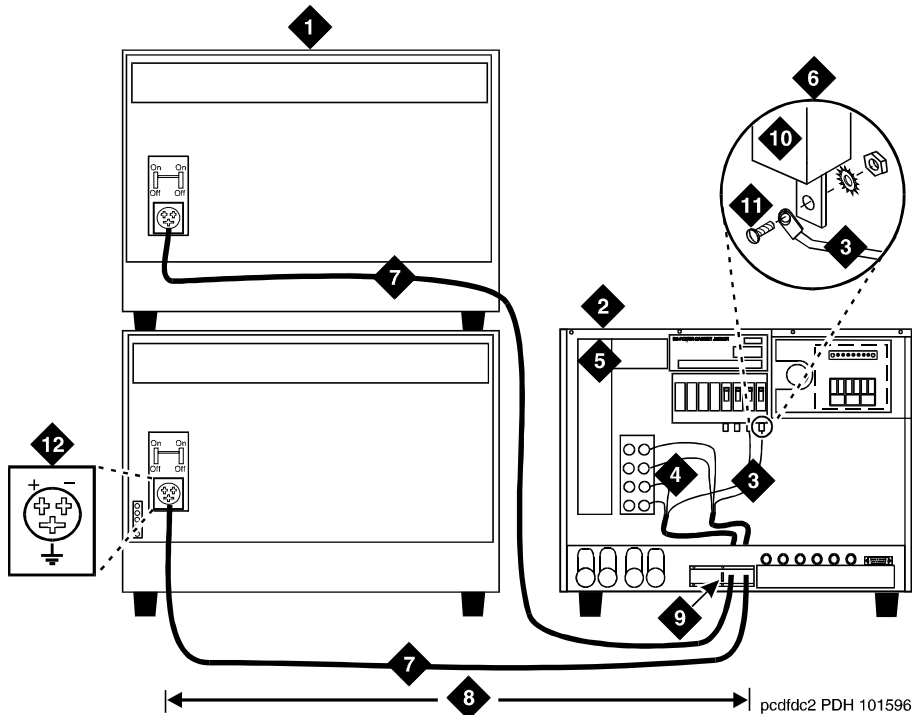


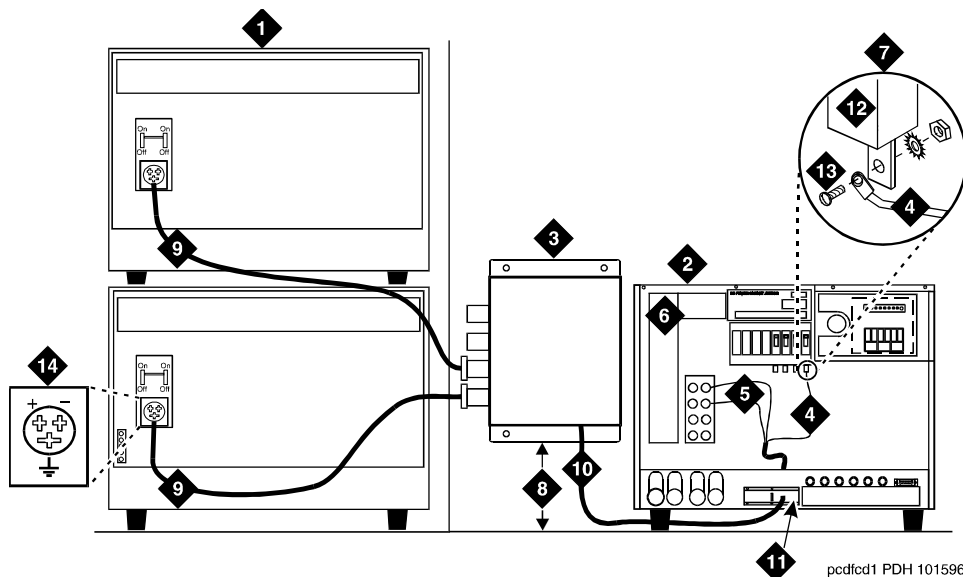
Figure Notes

- | | |
|---|---|
| 1. System Cabinet Stack | 7. DC Power Cable (H600-436, G1) to Power Connector on Each Cabinet. Cut to Length and Crimp a Ring Terminal Onto Each Wire |
| 2. DC Power Cabinet | |
| 3. White Wires | |
| 4. Green Ground Wires and Black Wires Connect to the -48 VDC Return Bus | 8. 30 Feet (9 m) Maximum |
| 5. -48 VDC Bus | 9. Route Cables Through Sliding Door |
| 6. Connect White Wires to Circuit Breakers | 10. Circuit Breaker |
| | 11. Supplied #10-32 Screw, #10 Star Washer, and #10-32 Hex Nut |
| | 12. Inset Showing DC Power Connector (Male) |

Figure 1-6. Typical DC Power Connections

DC Power Connections with DC Distribution Unit

A 10 foot (3 meter) power cord is equipped with the appropriate connectors. In the configuration shown in [Figure 1-7](#), each cabinet stack has a DC Power Distribution Unit associated with it.



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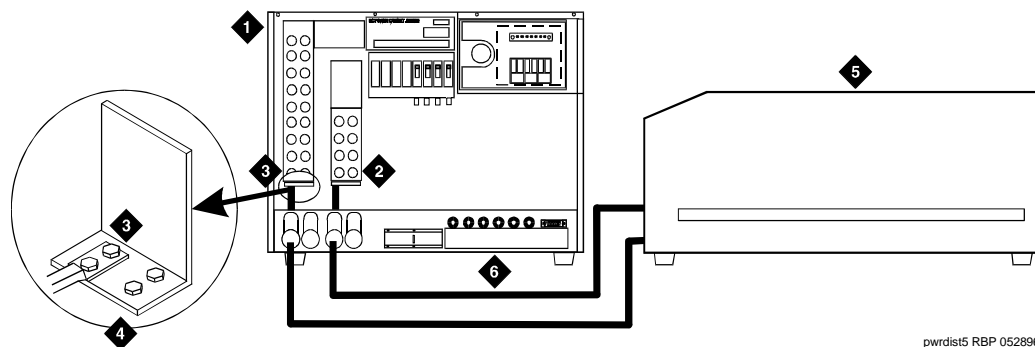
Figure Notes

- | | |
|--|---|
| 1. System Cabinet Stack | 9. DC Power Cable to Power Connector on Each Cabinet |
| 2. DC Power Cabinet | 10. DC Power Distribution Unit Power Cord (Route to Rear of DC Power Cabinet) |
| 3. DC Power Distribution Unit (Position to the Right of the Cabinet Stack) | 11. Route Power Cord Through Sliding Door |
| 4. White Wire (Connect to Circuit Breaker). See Inset. | 12. Circuit Breaker |
| 5. Green Ground Wire and Black Wire Connect to the -48 VDC Return Bus | 13. Supplied #10-32 Screw, #10 Star Washer, and #10-32 Hex Nut |
| 6. -48 VDC Bus | 14. Inset Showing DC Power Connector (Male) |
| 7. Inset | |
| 8. 12 Inches (30.5 cm) From Floor to DC Power Distribution Unit | |

Figure 1-7. Connections Using DC Power Distribution Unit

Connect Battery Cabinet

Figure 1-9 shows typical connections from the DC Battery Cabinet to the DC Power Cabinet.



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Figure Notes

- | | |
|---|--|
| 1. DC Power Cabinet | 4. Inset Applies to -48 VDC Buses and -48 VDC Return Buses |
| 2. Connect Red DC Power Cable to -48 VDC Return Bus | 5. Battery Cabinet |
| 3. Connect Black DC Power Cable to -48 VDC Bus | 6. DC Power Cables (Red and Black) |

Figure 1-9. DC Battery to DC Power Cabinet Connections



CAUTION:

Power is present in the cabinet even if the AC power cable is unplugged. Turn off the main circuit breaker on the front of the cabinet when procedures require ALL power to be removed from the cabinet.

Connect Optional Battery Leads

To prevent the internal batteries from discharging, the Control Cabinet is shipped with the battery leads disconnected.

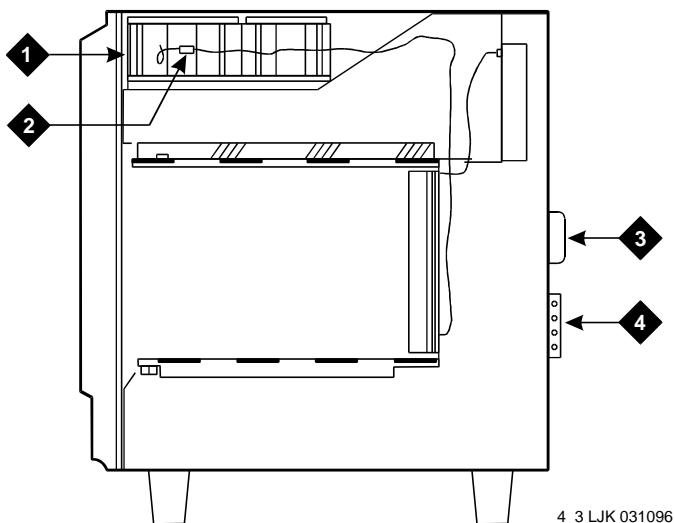


Figure Notes

- | | |
|---------------------------|--|
| 1. Battery | 3. Circuit Breakers (Located Between Plates) |
| 2. Battery Lead Connector | 4. Cabinet Single-Point Ground Block |

Figure 1-10. Control Cabinet Battery Location — Right Side

1. Set the circuit breakers OFF. See [Figure 1-10](#).
2. Connect the battery leads. The battery is near the top of the carrier toward the front-right. The battery leads are located next to the battery and are accessible from the front of the cabinet.

Connect AC Power to Stratum 3 Clock Cabinet

The clock cabinet requires a 120 VAC, 15 Amp receptacle. The green wire ground provided by the receptacle is sufficient. The clock cabinet does not require a ground connection back to the single-point ground.

Check and Connect Commercial AC Power

Before powering up the system, check the AC power using a KS-20599 digital voltmeter (DVM) (or equivalent).

1. Set the DVM to the 250 volt range.
2. Carefully measure the voltage between the hot and neutral side of the receptacle. The neutral wire is white, the hot wire is black.
3. Verify the meter reads 106 to 128 VAC. If not, have a qualified electrician correct the problem.
4. Measure the voltage between the neutral and ground side of the receptacle. The ground wire is green.
5. Verify the meter reads 0 VAC. If not, have a qualified electrician correct the problem.
6. Set all cabinet power modules OFF. Plug the AC power cable into the receptacle.

Connect DC Power and Ground to Stratum 3 Clock Cabinet

The clock cabinet should be powered from the same DC power plant as the DEFINITY System. The clock cabinet must be grounded to the DC power plant.

Connect Clock Cabinet Grounding

1. Measure and cut a 6 AWG (#40) (4 mm²) wire long enough to reach from the clock cabinet to the ground discharge bar in the DC power plant.
2. Insert one end of the wire into the ground lug on the clock cabinet and tighten the screw.
3. Attach the lug to the receptacle cover. Be sure the lug and cabinet ground wires connect to separate screws on the receptacle cover.
4. Route the ground wire to the DC power plant and connect to DISCH GRD in the cabinet.

Connect Stratum 3 Clock DC Power

1. Set the clock cabinet circuit breaker at the DC power plant OFF.
2. At the clock cabinet, connect a 6 AWG (#40) (4 mm²) ground wire to the -48V terminal on the terminal strip.
3. At the clock cabinet, connect a 6 AWG (#40) (4 mm²) wire to the -48VRTN terminal on the terminal strip.
4. Route the wires out of the cabinet and to the DC power plant.
5. At the DC power plant, connect the -48V wire to the DC OUTPUT circuit breaker.
6. At the DC power plant, connect the -48VRTN wire to the DISCH GRD bar.

Connect Time Division Multiplexing Bus Cables

If the cabinet stack contains only one Single-Carrier Cabinet, skip this section and proceed to [“Verify Port Cabinet Address Plugs” on page 1-26](#).

Locate the white fabric-covered Time Division Multiplexing (TDM) bus cable on the rear of the cabinets.

Standard Reliability Processor Port Network

One cabinet stack:

1. Remove the Time Division Multiplexing (TDM) Bus Terminator (AHF110) from Slot 18 of the Control Cabinet (Processor Port Network (PPN)) and move it to Slot 17 on the top Port Cabinet. See [Figure 1-11](#).
2. Connect the supplied Time Division Multiplexing (TDM) Bus Cables (WP-91716 L3) as shown in [Figure 1-11](#).

High or Critical Reliability Processor Port Network

Two cabinet stacks:

1. Remove the Time Division Multiplexing (TDM) Bus Terminator from Slot 18 of Control Cabinet A (Processor Port Network (PPN)) and move it to Slot 18 of Control Cabinet B. See [Figure 1-12](#).
2. Connect the supplied Time Division Multiplexing (TDM) Bus Cables (WP-91716 L3) from Cabinet A to Cabinet B as shown.

High or Critical Reliability Processor Port Network

Three cabinet stacks:

1. Remove the Time Division Multiplexing (TDM) Bus Terminator from Slot 18 of Control Cabinet A (Processor Port Network (PPN)) and move it to Slot 17 on the top port cabinet. See [Figure 1-13](#).
2. Connect the supplied TDM Bus Cables (WP-91716 L3) as shown.

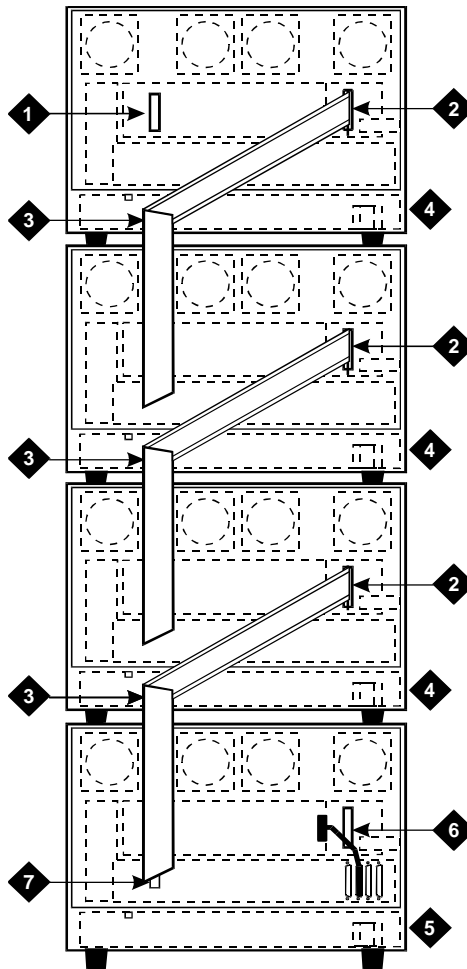
Expansion Port Network (All Reliability Options)

1. Remove the TDM Bus Terminator from Slot 18 of Control Cabinet A (PPN) and move it to Slot 17 on the top port cabinet. See [Figure 1-12](#).
2. Connect the supplied TDM Bus Cables (WP-91716 L3) as shown.

1 Install and Connect the Cabinets

Connect Time Division Multiplexing Bus Cables

1-23



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Figure Notes

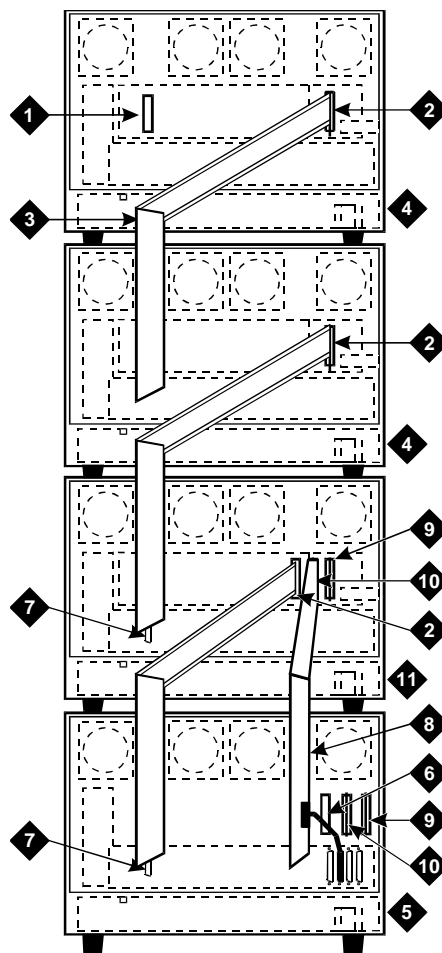
- | | |
|--|--|
| 1. AHF110 TDM Bus Terminator (Slot 17) | 4. Port Cabinet (Standard Reliability) |
| 2. TDM/Local Area Network (TDM/LAN) Pinfield (Slot 00) | 5. Control Cabinet A Position |
| 3. TDM Bus Cable WP-91716 L3 | 6. AHF110 TDM Bus Terminator (Slot 03) |
| | 7. Slot 18 |

Figure 1-11. Connections for Standard Reliability Systems

1 Install and Connect the Cabinets

Connect Time Division Multiplexing Bus Cables

1-24



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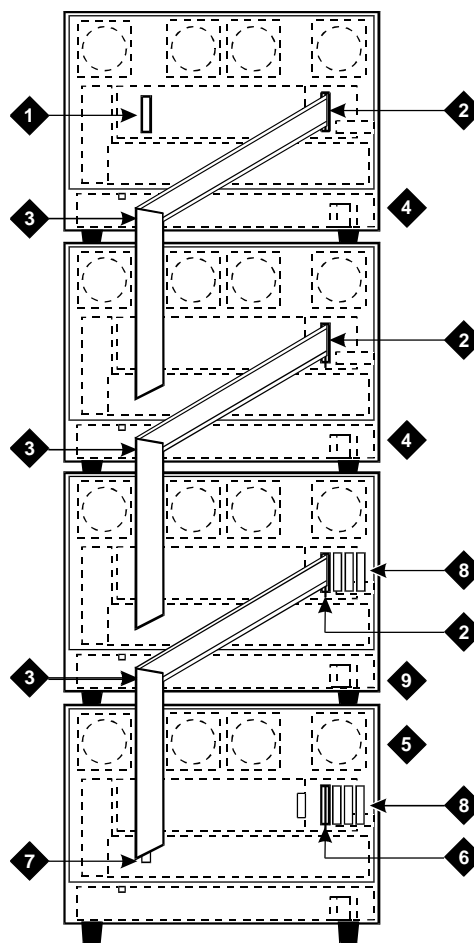
Figure Notes

- | | |
|--|--|
| 1. AHF110 TDM Bus Terminator (Slot 17) | 7. Slot 18 |
| 2. TDM/Local Area Network (TDM/LAN) Pinfield (Slot 00) | 8. Inter-Cabinet Cables (ICC) A, B and C (H600-248-G1) |
| 3. TDM bus Cable (WP-91716 L3) | 9. Inter-Cabinet Cable (ICC) A |
| 4. Port Cabinet | 10. Inter-Cabinet Cable (ICC) B |
| 5. Control Cabinet A Position | 11. Duplicated Control Cabinet B Position |
| 6. AHF110 TDM Bus Terminator (Slot 01) | |

Figure 1-12. Connections for High or Critical Reliability Systems

1 Install and Connect the Cabinets

Connect Time Division Multiplexing Bus Cables



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Figure Notes

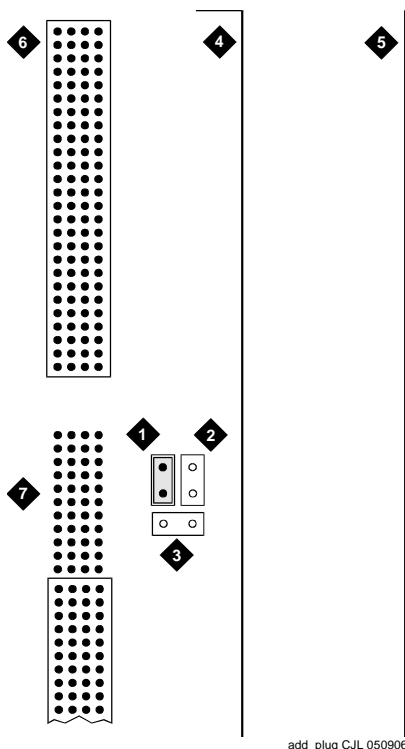
- | | |
|--|---|
| 1. AHF110 TDM Bus Terminator (Slot 17) | 6. AHF110 TDM Bus Terminator (Slot 03) |
| 2. TDM/Local Area Network (TDM/LAN) Pinfield (Slot 00) | 7. Slot 18 |
| 3. TDM bus Cable (WP-91716 L3) | 8. Inter-Cabinet Cables (ICC) B and C (H600-259-G1) |
| 4. Port Cabinet | 9. Duplicated Control Cabinet B Position |
| 5. Control Cabinet A Position | |

Figure 1-13. Connections for High or Critical Reliability Systems

Verify Port Cabinet Address Plugs

The address plug is a jumper field on port cabinets only. The address plug is located on the far right hand side of the backplane, to the right of slot 00.

A group of six pins is labeled for the cabinet (carrier) jumper connections. Verify the address plug for *each* port carrier is in the correct location for that carrier. See [Figure 1-14](#). The factory default setting is “B” (Callout 2 in [Figure 1-14](#)).



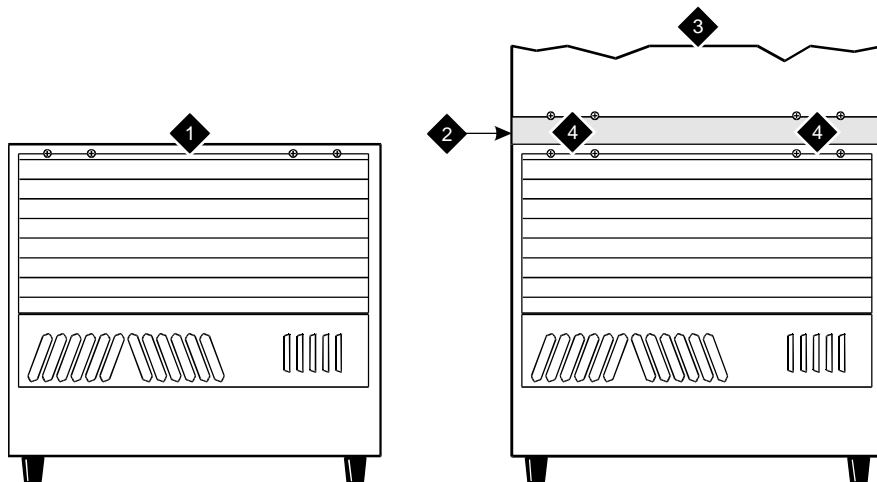
add_plug C.J.L. 050906

Figure Notes

- | | |
|--|--------------------------|
| 1. Address Plug (Shown Set to Carrier D) | 5. Right Edge of Cabinet |
| 2. Carrier B Jumper Location (Default) | 6. Backplane Slot 00 |
| 3. Carrier C Jumper Location | 7. To Connector Panel |
| 4. Right Edge of Backplane | |

Figure 1-14. Port Cabinet Address Plug Location — Cabinet Rear

Install Rear Panels



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Figure Notes

1. Cabinet in A Position (No Ground Plate is Installed on an Unstacked Cabinet)
2. Rear Ground Plate (Attached Between Stacked Cabinets)
3. Cabinet in B Position
4. Screws to Loosen

Figure 1-15. Rear Panel Screw Locations

1. Install the rear panels and loosely thread each screw. See [Figure 1-15](#).
2. For *unstacked* cabinets, tighten the screws securely.
For a *stack* of cabinets, allow the screws labeled Callout 4 to remain loose. These screws are tightened when the ground plates are installed.
3. Be sure the Time Division Multiplexing (TDM) bus cables and the Inter-Cabinet Cables (ICC) are not pinched by the panels. Also be sure the cables are routed through the channels provided on the rear panels.

Install Ground Plates

Ground plates are installed between stacked cabinets, provide the ground connection between cabinets, provide radio frequency (RF) radiation protection, and help stabilize the cabinets.

Install Rear Ground Plates (Systems with Earthquake Protection)

1. Loosen the four screws at the bottom of the top cabinet and at the top of the cabinet underneath the top cabinet. See [Figure 1-15](#).
2. Align the mounting holes in the rear ground plate over the bottom screws in the top cabinet. See [Figure 1-16](#).
3. Align the mounting holes in the ground plate with the four holes at the top of the cabinet below the top cabinet. Slide the mounting plate down to seat on the screws.
4. Check all Time Division Multiplexing (TDM) bus cables and the Inter Cabinet Cables (ICC) to be sure they are not pinched by the plates.
5. Repeat Steps 1-3 until the rear ground plates are installed between all stacked cabinets.
6. Do not tighten the screws yet.

Install Front Ground Plates (Systems with Radiation Shielding and Earthquake Protection)

Use the front ground plate instead of the cabinet clip to attach the cabinets to each other. Use one front ground plate between two *stacked* cabinets.

1. At the front of the cabinets, align the holes in the top of the front ground plate with the holes at the bottom of the upper cabinet, and insert the four screws. Do not tighten the screws yet. See [Figure 1-16](#).
2. At the front of the cabinets, align the holes in the bottom of the front ground plate with the holes at the top of the lower cabinet. Insert the four supplied #12-24 x 1/2-inch (1.27 cm) thread-forming screws. Do not tighten the screws yet.
3. Repeat Steps 1 and 2 until all stacked cabinets are fastened together.
4. Tighten all screws securely.

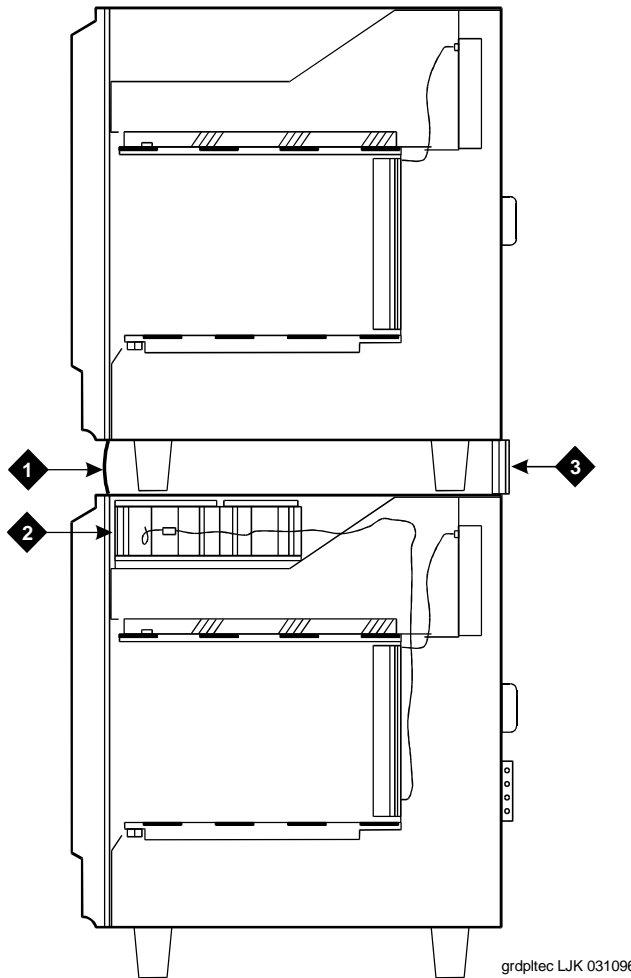


Figure Notes

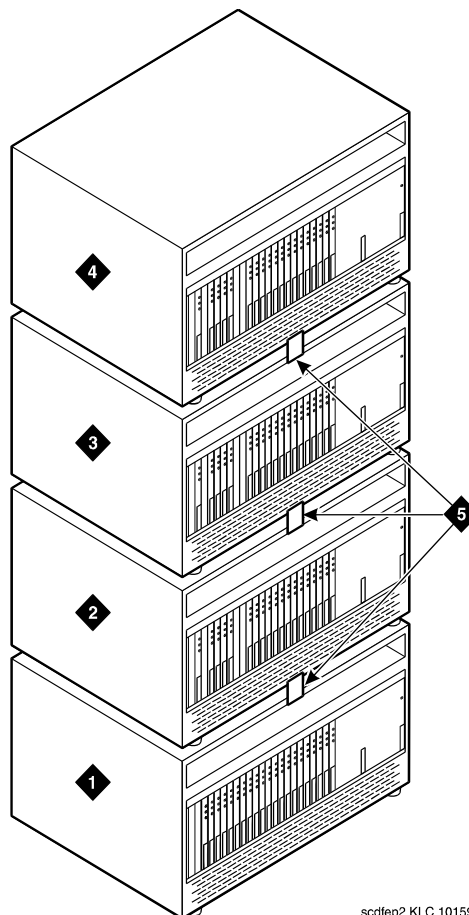
- 1. Front Ground Plate or Cabinet Clip
- 2. Battery
- 3. Rear Ground Plate

Figure 1-16. Rear Ground Plate and Front Plate or Cabinet Clip — Side View

Install Cabinet Clips (Systems without Earthquake Protection)

A cabinet clip is required between each pair of stacked cabinets.

At the front of the cabinets, install a cabinet clip between each pair of cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet. See [Figure 1-17](#).



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Figure Notes

- | | |
|---|------------------|
| 1. Control Cabinet | 4. Port Cabinet |
| 2. Port Cabinet or Duplicated Control Cabinet | 5. Cabinet Clips |
| 3. Port Cabinet | |

Figure 1-17. Location of Cabinet Clips

Connect System Cables

Inter-Cabinet Cables (High or Critical Reliability)

1. Connect the cables for critical reliability Expansion Port Networks (EPNs) as shown in [Figure 1-12](#) and in [Table 1-1](#) below.
2. Connect the cables for high or critical reliability Processor Port Networks (PPNs) as shown in [Figure 1-13](#).

Table 1-1. Inter-Cabinet Cable Connections

Cabinet	From Cabinet A		To Cabinet B	
	Carrier	Connection	Carrier	Connection
Processor Port Network (PPN)	J58890L	(ICC) B	J58890M	(ICC) B
		(ICC) C		(ICC) C
Expansion Port Network (EPN)	J58890N	(ICC) A	J58890H	(ICC) A
		(ICC) B		(ICC) B

Fiber Optic Cables

The fiber optic cables are connected to the Main Distribution Frame (MDF) in [Chapter 2, "Install Telecommunications Cabling"](#). Refer to [Appendix B, "Connecting and Handling Fiber Optic Cables"](#) for information about connecting to optical cross-connect hardware and routing through lightguide equipment.

The DEFINITY ECS may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote Expansion Port Network (EPN). The LASER device operates within the following parameters:

Maximum Power Output: -5 dBm
 Wavelength: 1310 nm
 Mode Field Diameter: 8.8 microns

CLASS 1 LASER PRODUCT
IEC 825 1993



CAUTION:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Contact your Lucent Technologies representative for more information.

Fiber Optic Cable Connections

The Customer Service Document (CSD) provides an "Inter-Cabinet Cable Running List." Each row on the list represents a cable connection. Use the running list to determine where to connect each fiber optic cable.

Multi-Mode Fiber Optic Connections

The following components are used in multi-mode fiber optic connections:

- Expansion Interface (EI) circuit packs in port slots in cabinet carriers
- Cables from each interface circuit pack to each port slot connector
- The 9823A lightwave transceiver transmits up to 4,900 feet (1.5 km). The 9823B lightwave transceiver transmits up to 25,000 feet (7.6 km).
- Multi-mode fiber optic cable consists of two separate 62.5 micron diameter fiber optic cables or 50 micron diameter fiber optic cables.

Single-Mode Fiber Optic Connections

The following components are used in single-mode fiber optic connections:

- Expansion Interface (EI) circuit packs in port slots in cabinet carriers
- Cables from each interface circuit pack to each port slot connector
- The 300A lightwave transceivers transmits light up to 115,000 feet (35 km). Fiber loss must be less than 17dB. Saturation may occur if distances are short; attenuators may be required if the total loss on the fiber link is less than 10dBm. An Optical Time Domain Reflectometer (OTDR) test is recommended to determine specific fiber optic hardware requirements.
- Single-mode fiber optic cable consists of two separate 8 to 10 micron core cables.



NOTE:

5 and 10dB attenuators are available. Contact your Lucent Technologies representative for more information.

Recommended Cable Routing

1. Route the fiber optic cable up toward the top of the cabinet. The excess cable should be looped and draped from the B25A cable clamp on the top ground plate in the stack. See [Figure 1-18](#).
2. Dress the cable by tie wrapping it to the outside of the B25A cable clamp.

CAUTION:
Do not route fiber optic cables and the B25A cables together.

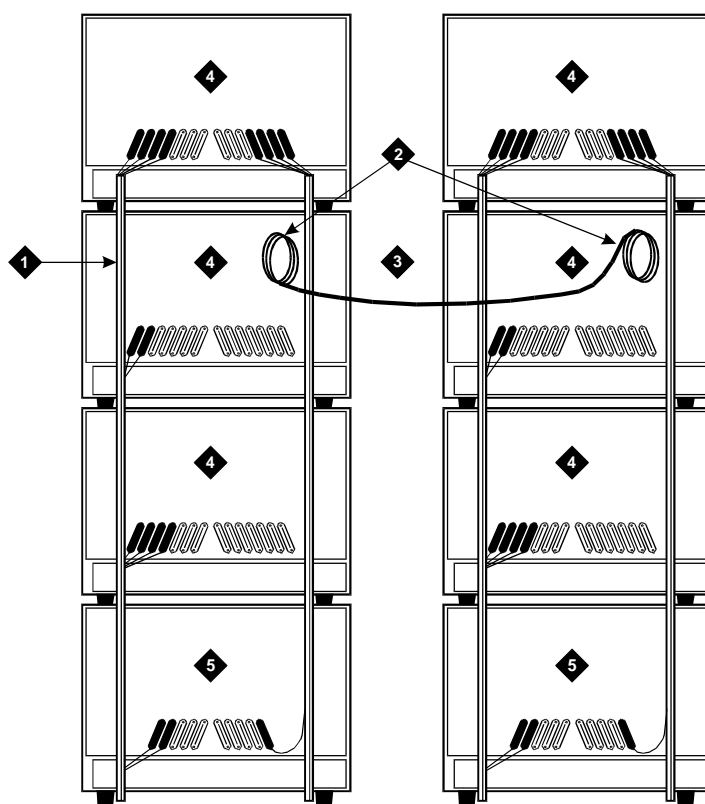


Figure Notes

- | | |
|--|-----------------------------|
| 1. Supplied B25A Cables | 3. Fiber Optic Cable Sheath |
| 2. Loop and Drape Excess Fiber Optic Cable | 4. Port Cabinet |
| | 5. Control Cabinet |

Figure 1-18. Single-Carrier Cabinet Fiber Routing

Standard Reliability Fiber Connections

Connect and route the fiber optic cable as shown in the cable running list. See [Figure 1-19](#) for a sample cable routing.

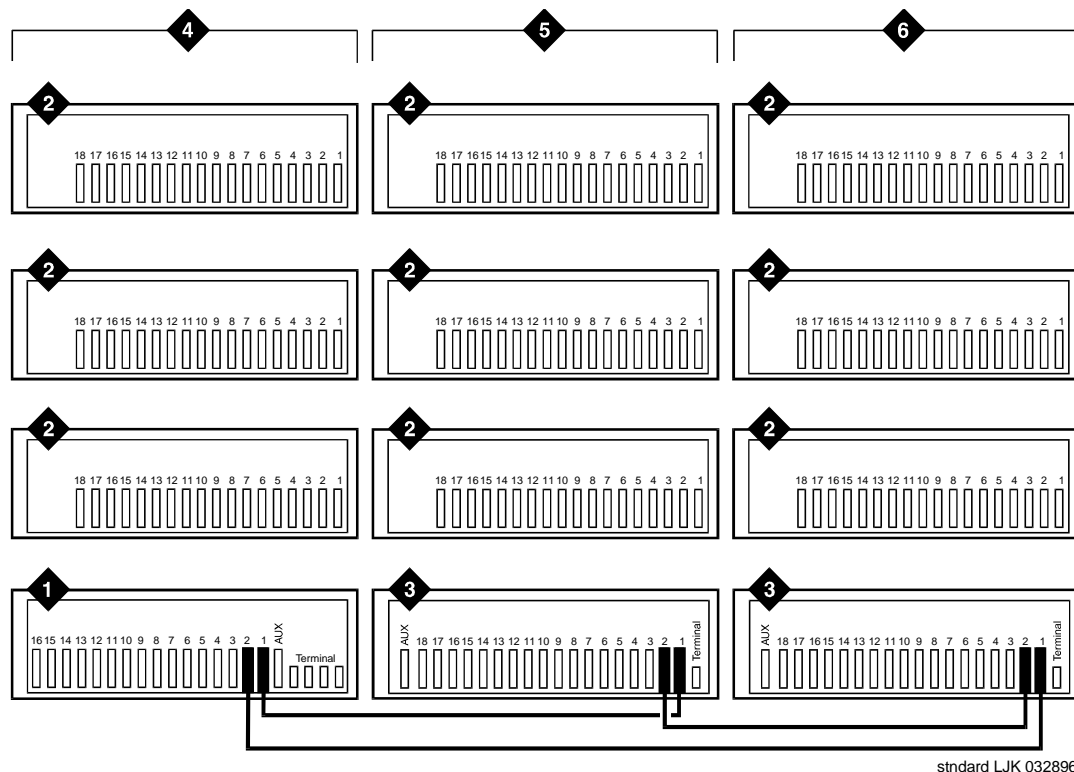


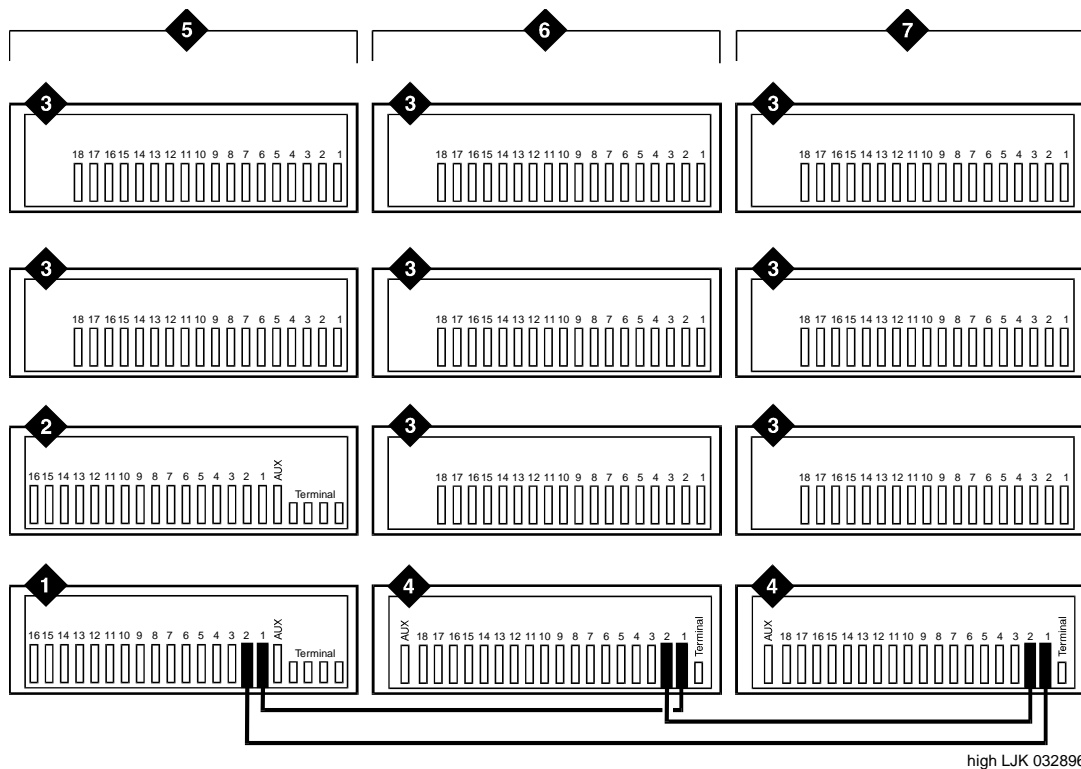
Figure Notes

- | | |
|------------------------------|--------------------|
| 1. Control Cabinet | 4. Cabinet Stack 1 |
| 2. Port Cabinet | 5. Cabinet Stack 2 |
| 3. Expansion Control Cabinet | 6. Cabinet Stack 3 |

Figure 1-19. Connections to Standard Reliability Systems

High Reliability Fiber Connections

Connect and route the fiber optic cable as shown in the cable running list. See [Figure 1-20](#) for a sample cable routing.



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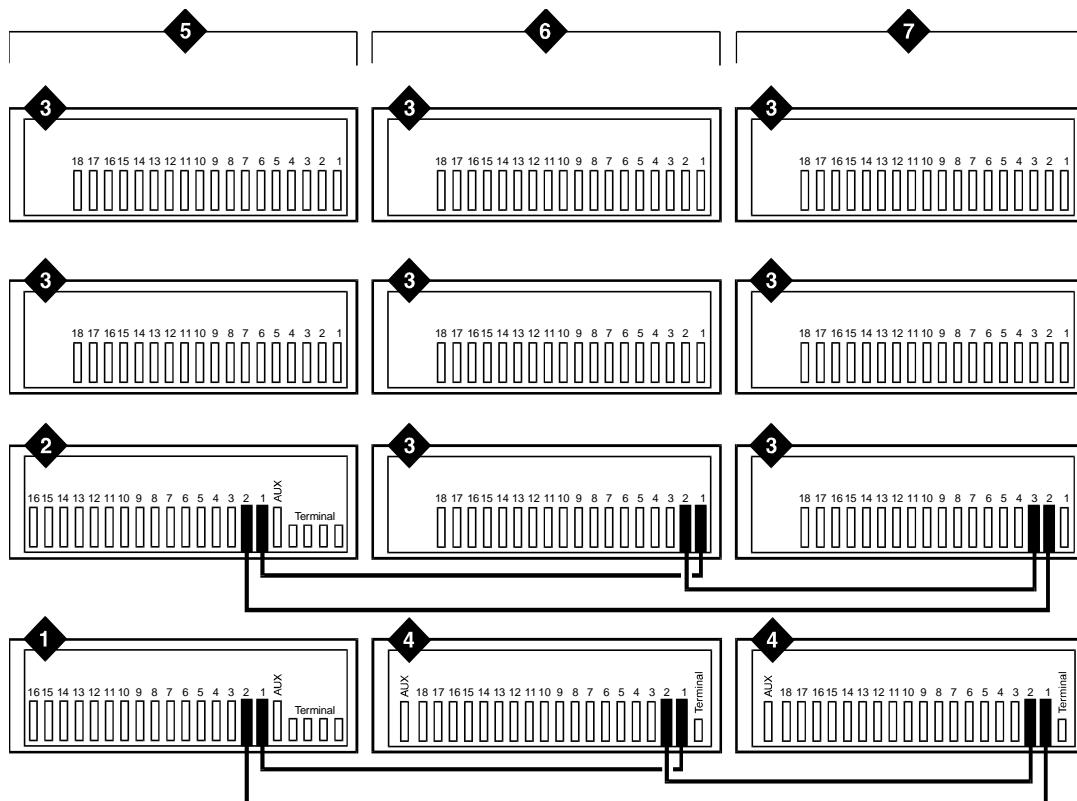
Figure Notes

- | | |
|------------------------------|--------------------|
| 1. Control Cabinet | 5. Cabinet Stack 1 |
| 2. Duplicate Control Cabinet | 6. Cabinet Stack 2 |
| 3. Port Cabinet | 7. Cabinet Stack 3 |
| 4. Expansion Control Cabinet | |

Figure 1-20. Connections to High Reliability Systems

Critical Reliability Fiber Connections

Connect and route the fiber optic cable as shown in the cable running list. See [Figure 1-21](#) for a sample cable routing.



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Figure Notes

- | | |
|------------------------------|--------------------|
| 1. Control Cabinet | 5. Cabinet Stack 1 |
| 2. Duplicate Control Cabinet | 6. Cabinet Stack 2 |
| 3. Port Cabinet | 7. Cabinet Stack 3 |
| 4. Expansion Control Cabinet | |

Figure 1-21. Connections to Critical Reliability Systems

Install Earthquake Protection

Earthquake protection only installs on Single-Carrier Cabinets.

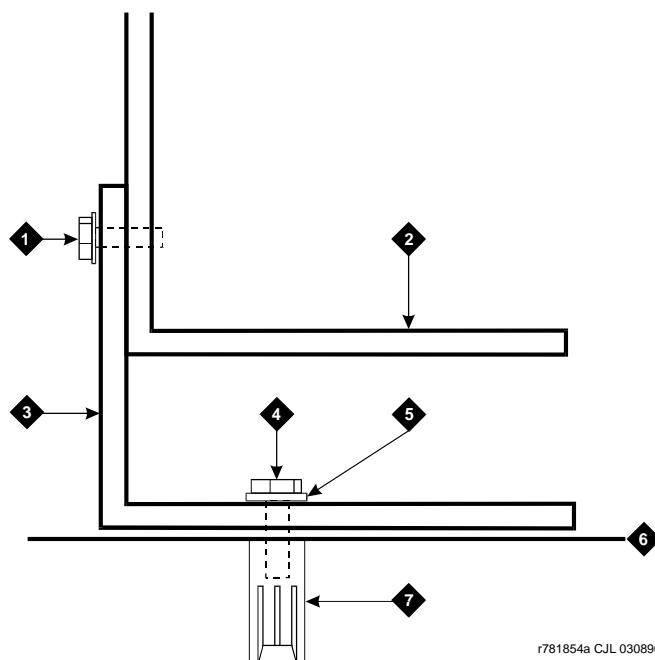


Figure Notes

- | | |
|---|----------------------------|
| 1. #12-24x1/2-inch Thread Forming Screw | 4. Hex Head Bolt |
| 2. Control Cabinet | 5. Nylon Insulating Washer |
| 3. Front Mounting Angle | 6. Concrete Floor |
| | 7. Concrete Floor Anchor |

Figure 1-22. Front Mounting Angle Location

1. Position the Control Cabinet (J58890L) in the position it is to occupy when the installation is complete. Be sure the cabinet is level.
2. Using a pencil or marker and using the Front Mounting Angle as a template, mark the locations of the two floor mounting holes.
3. Move the cabinet out of the way and drill a hole 0.5-inch (1.3 cm) in diameter and 1.5 inches (3.8 cm) deep at the locations marked in Step 2.
4. Insert a concrete floor anchor (STARR part number 3425) into each hole.

1 Install and Connect the Cabinets
Install Earthquake Protection

1-38

5. Secure the Front Mounting Angle to the floor using the short hex head bolts provided.
6. Move the cabinet back into place.
7. At the rear of the cabinet, remove the two hole plugs from the bottom of the cabinet. See [Figure 1-23](#).
8. Insert a pencil or marker through the holes in the bottom of the cabinet and mark the floor directly beneath each hole.
9. Move the cabinet out of the way and drill a hole 0.5-inch (1.27 cm) in diameter and 1.5 inches (3.8 cm) deep at the locations marked in Step 8.
10. Insert a concrete floor anchor (STARR part number 3425) into each hole.
11. Move the cabinet back into place and align with the Front Mounting Angle.
12. Attach the cabinet to the Front Mounting Angle using the four supplied #12-24 x 1/2-inch (1.27 cm) thread-forming screws. See [Figure 1-22](#).

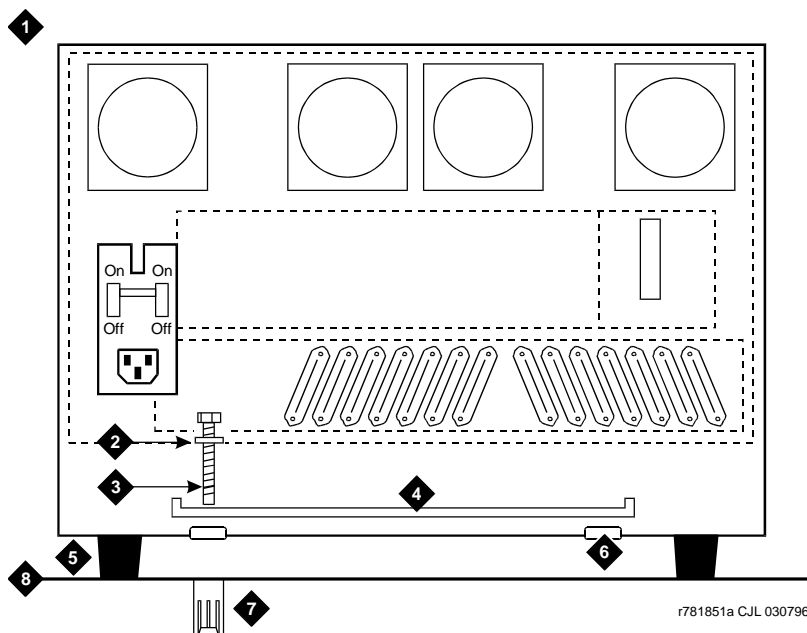


Figure Notes

- | | |
|---|--------------------------|
| 1. Cabinet | 5. Cabinet Foot |
| 2. Nylon Insulating Washer (2 Required) | 6. Floor Plugs (Remove) |
| 3. Long Hex Head Bolt (2 Required) | 7. Concrete Floor Anchor |
| 4. Stiffener | 8. Concrete Floor |

Figure 1-23. Cabinet Earthquake Mounting — Rear View

13. Lay the supplied Stiffener on the bottom rear of the cabinet and align with the holes in the bottom of the cabinet. See [Figure 1-23](#).
14. Slide a nylon washer onto each of the two supplied long hex head bolts.
15. Insert the bolts through the Stiffener and thread into the concrete floor anchor. Tighten securely.



NOTE:

If critical reliability is installed, the Expansion Control Cabinet sets on the floor, next to Control Cabinet A. Repeat the above procedures.

1 Install and Connect the Cabinets
Install Earthquake Protection

1-40

Install Telecommunications Cabling

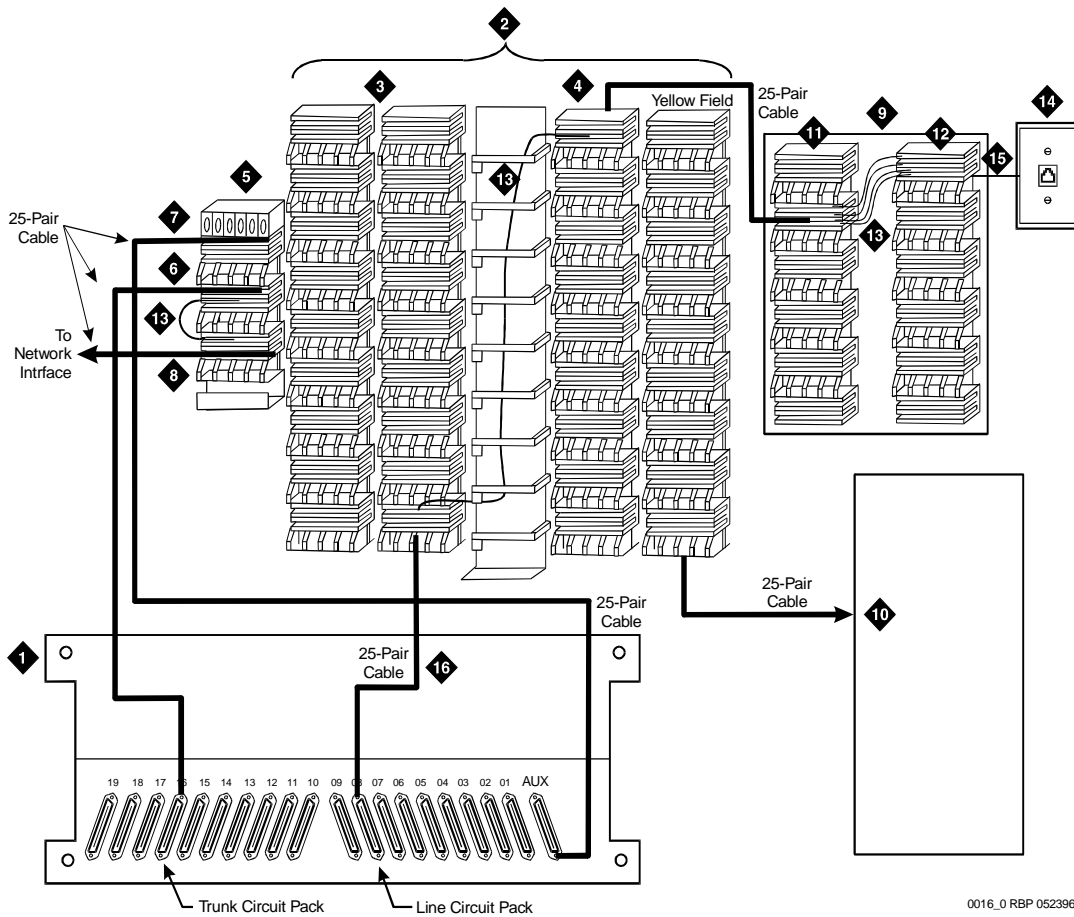
2

Equipment Room Hardware

SYSTIMAX 110-type hardware is used for the Main Distribution Frame (MDF). 110-type hardware is available in two basic types: the 110A and 110P. The 110A requires less wall space than the 110P. The 110P includes horizontal and vertical cable troughs for managing cross-connect cables. The system is connected to the MDF with the supplied B25A male to female 25-pair cables. The cables are provided in 10-foot (3 m) and 15-foot (4.5 m) lengths.

Refer to *DEFINITY Communications System Generic 1 and Generic 3 Main Distribution Field Design* for more information.

[Figure 2-1](#) shows a detailed example of Single-Carrier Cabinet cables connecting system cabinets and satellite closets to the MDF. The figure shows the cross-connections for one example station circuit.



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Figure Notes

- | | |
|---|--------------------------------------|
| 1. Rear of Port Cabinet | 9. Satellite Closet |
| 2. Main Distribution Frame (MDF) | 10. Auxiliary Cabinet (Yellow Field) |
| 3. Port Distribution Field (Purple Field) | 11. White Field |
| 4. Station Distribution Field (White Field) | 12. Blue Field |
| 5. Trunk/Auxiliary Field | 13. Cross-Connect Jumpers |
| 6. Purple Field | 14. 103A or Modular Wall Jack |
| 7. Yellow Field | 15. 4-Pair Line Cord |
| 8. Green Field | 16. To Line Circuit Pack |

Figure 2-1. Example MDF Connections

Cross-Connect Fields

Each Main Distribution Frame (MDF) contains a trunk/auxiliary field and a distribution field. The trunk/auxiliary field contains three cross-connect areas:

1. *The green field* terminates the network interface leads from the Central Office (CO) and provides the terminals to cross-connect the leads to the purple or yellow fields as required. A single row of the 110-type terminal block can terminate twenty-four 1-pair, eight 3-pair, or twelve 2-pair trunks.
2. *The purple field* terminates the trunk circuits from the system with WP-90929, List 1 or 3 concentrator cables. Also, 25-pair cables can be used to terminate trunk circuits from the system with each trunk circuit pack connecting to one 25-pair row of the 110-type terminal block. Each terminal block row can terminate twenty-four 1-pair, eight 3-pair, or twelve 2-pair trunks.
3. *The yellow field* provides cross-connect terminals for all miscellaneous leads from the system, such as alarm monitors, emergency transfer relay power, and attendant console power. This field is used for emergency transfer wiring, paging equipment, music sources, and so forth.

The distribution field contains four cross-connect areas:

1. *The purple field* (port field) terminates 25-pair cables from the system. Each line circuit pack connects to one 25-pair row of the 110-type terminal block. One 25-pair cable is required for each line circuit pack.

NOTE:

The 16-port analog line circuit pack requires an adapter cable to connect from one connector on the system to two 25-pair connectors on a terminal block. Two MET circuit packs require a concentrator cable to connect from two connectors on the system to one 25-pair connector on a terminal block.

2. *The yellow field* (auxiliary field) terminates all 25-pair cables from the auxiliary cabinet and the Processor Interface. The yellow field is located in the lower right-hand corner of the distribution field.
3. *The white field* (station field) terminates the station wiring. The white field indicates 3-pair station circuits (eight circuits per 25-pair cable) routed through a satellite closet.
4. *The blue field* (station field) also terminates station wiring. The blue field indicates 3- and/or 4-pair station circuits (six or eight circuits, respectively, per 25-pair cable). The fourth pair, of the 4-pair station circuit provides adjunct power from the cross-connect field on an as-needed basis to terminals within 250 feet (76 m) of the MDF.

Main Distribution Frame

The Main Distribution Frame (MDF) is located directly behind the cabinet stack. [Figure 2-2](#) shows a typical Single-Carrier Cabinet installation using 110A-type terminal blocks.

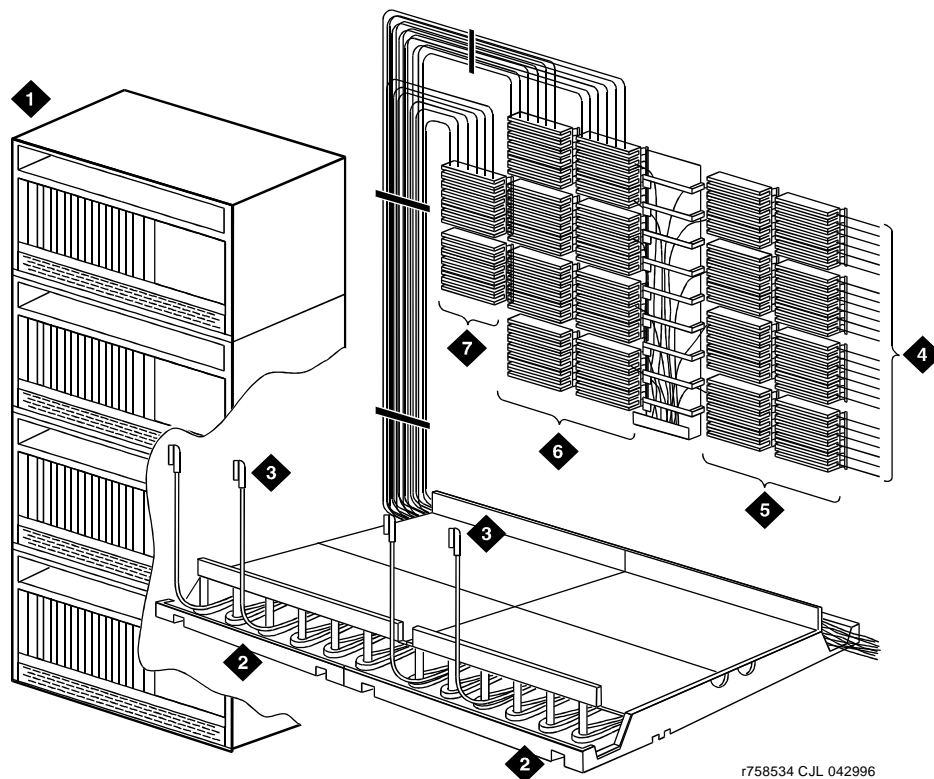


Figure Notes

- | | |
|------------------------------------|-------------------------------|
| 1. System Cabinets (Stacked) | 5. Station Distribution Field |
| 2. Z113A Cable Slack Manager | 6. Port Distribution Field |
| 3. 25-Pair Cable to System Cabinet | 7. Trunk/Auxiliary Field |
| 4. Station Cables | |

Figure 2-2. Typical 110A-Type Terminal Blocks

Installation Requirements

Off-Premises Circuit Protection

Protection from hazardous voltages and currents is required for all off-premises (out of building) trunks, lines, and terminal installations. Both over-voltage protection (lightning, power induction, and so forth), and sneak current protection are required. Sneak current protectors must be either UL listed/CSA certified, or must comply with local safety standards.

Sneak current protectors must have a maximum rating of 350 mA, and a minimum voltage rating of 600V, or as required by local regulations. The following devices protect the system from over-voltages:

- Analog trunks use the 507B sneak protector or equivalent. Over-voltage protection is normally provided by the local telephone company.
- Analog voice terminals use one of the following types of combined over-voltage and sneak current protection, or equivalent:
 - Carbon block with heat coil for UL code 4B1C
 - Gas tube with heat coil for UL code 4B1E-W
 - Solid state with heat coil for UL code 4C1S
- DCP and ISDN-BRI terminals use the solid state 4C3S-75 with heat coil protector, or equivalent
- DS1/E1/T1 circuits require isolation from exposed facilities. This isolation may be provided by a CSU (T1), LIU (E1), or other equipment that provides equivalent protection

Sneak Fuse Panels and Emergency Transfer Units

Approximately eight inches (20 cm) of horizontal wall space is required for each column of sneak fuse panels. Horizontal wall space must also be provided for emergency transfer units.

110-Type Hardware

The trunk/auxiliary field and the distribution field are mounted on the same wall. Each 110P-type terminal block is 8.5 inches (21.6 cm) wide. Vertical patch cord troughs are 5.31 inches (13.4 cm) wide and horizontal patch cord troughs are 23 inches (58.4 cm) wide.

Each 110A-type terminal block is 10.81 inches (27.4 cm) wide; however, no horizontal patch cord troughs are used and the blocks are shorter than 110P-type terminal blocks. This allows the 110A-type terminal blocks to be stacked. Therefore, the 110A-type hardware requires less space than the 110P-type hardware on a per-station basis.

Cable Slack Manager

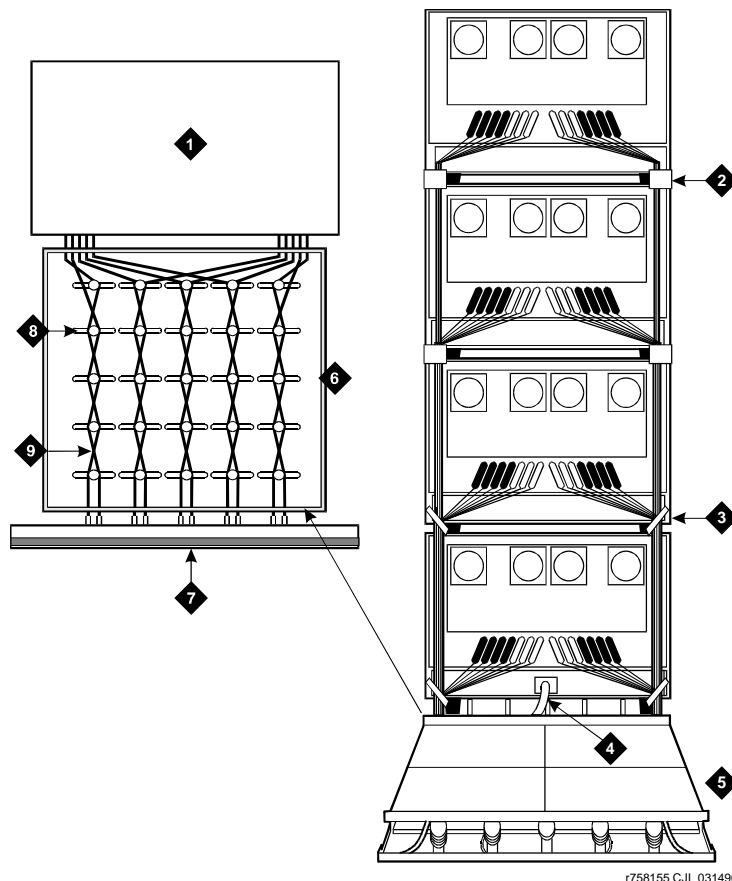
A Cable Slack Manager is 32 inches (81.3 cm) wide. Slack managers are commonly used in installations consisting of cabinet stacks. The quantity of slack managers is determined by dividing the total length of the MDF in inches (centimeters) by 32 (81.3). A partial number of 0.4 or less should be rounded down, and a partial number of 0.5 or more should be rounded up (for example: 2.4 = 2 Cable Slack Managers and 2.5 = 3 Cable Slack Managers).

NOTE:

Cable clamps are required in installations with Cable Slack Managers. At the rear of the cabinets, on each rear ground plate, install two cable clamps using the screws provided. These clamps hold the 25-pair input/output or MDF cables in place.

Install Equipment and Cables

Install the Main Distribution Frame (MDF), the Cable Slack Manager, and the sneak fuse panels. Route the cables from the rear of the cabinet stack to the MDF via the Cable Slack Manager. See [Figure 2-3](#).



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Figure Notes

1. Top View of System Cabinets
2. Cable Clamps
3. Cable Ties (Optional)
4. Power Cord
5. Cable Slack Manager
6. Cable Slack Manager (Cover Removed)
7. Main Distribution Frame (MDF)
8. Route Cables Along Path Shown
9. Port Cables

Figure 2-3. Cable Routing Through Cable Slack Manager

Install Sneak Fuse Panels

Sneak current protection is required between the incoming RJ21X or RJ2GX network interface and the system for both trunk and off-premise circuit packs.

The Model 507B sneak current fuse panel, or equivalent, is recommended for sneak current protection. See [Figure 2-4](#). The panel contains two 25-pair connectors, fuse removal tool, and fifty 220029 Sneak Fuses (and two spares).

Connector cables (B25A male to female) connect the network interface to the sneak fuse panel. Also, 157B connecting blocks equipped with SCP-110 protectors can be used for sneak current protection.

Sneak Fuse Panel Ordering Information

Description	Comcode
157B Connecting Block	403613003
SCP-110 Protector	406948976
507B Sneak Current Fuse Panel	107435091
220029 Sneak Current Fuse	407216316

NOTE:

Sneak current protectors with a rating of 350 mA at 600 volts must be Underwriter's Laboratory (UL) listed for domestic installation and Canadian Standards Association (CSA) certified for Canadian installation.

- The 507B includes 52 sneak fuses and two cables and can be ordered using PEC code 63210.
- The SCP-110 protectors are used with 110-type hardware and on the 507B Sneak Fuse Panel. The SCP-110 Protectors can be ordered separately and installed on the 157B connecting block. Fifty protectors are required per block.

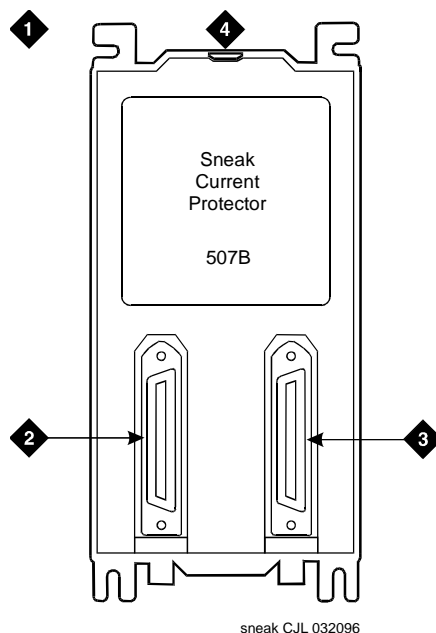


Figure Notes

- | | |
|--------------------------------|--|
| 1. Sneak Fuse Panel | 3. 25-Pair Female Connector (Out) |
| 2. 25-Pair Male Connector (In) | 4. 220029 Fuses (Inside Panel). Use Small Screwdriver to Pry Top Cover Off |

Figure 2-4. Model 507B Sneak Fuse Panel

1. Locate the 507B near the network interface or the MDF.
2. Hold the panel against the mounting surface and mark the mounting screw locations. Drill pilot holes at the marked locations and partially install a locally obtained #12 x 3/4-inch screw into the two bottom mounting slots.
3. Slide the sneak fuse panel onto the mounting screws and tighten the screws securely.
4. Install a locally obtained #12 x 3/4-inch screw into the top two mounting slots and tighten securely.
5. Repeat the procedure for each sneak fuse panel.

[Table 2-1](#) is a pinout of the cable wiring and associated fuse numbers.

Table 2-1. Sneak Fuse Connector Pinout

Connector Pin Numbers	Pair/Fuse Number
26/1	1
27/2	2
28/3	3
29/4	4
30/5	5
31/6	6
32/7	7
33/8	8
34/9	9
35/10	10
36/11	11
37/12	12
38/13	13
39/14	14
40/15	15
41/16	16
42/17	17
43/18	18
44/19	19
45/20	20
46/21	21
47/22	22
48/23	23
49/24	24
50/25	25

- Secure the B25A cable to the panel with the captive screw on the connector and a supplied cable tie.

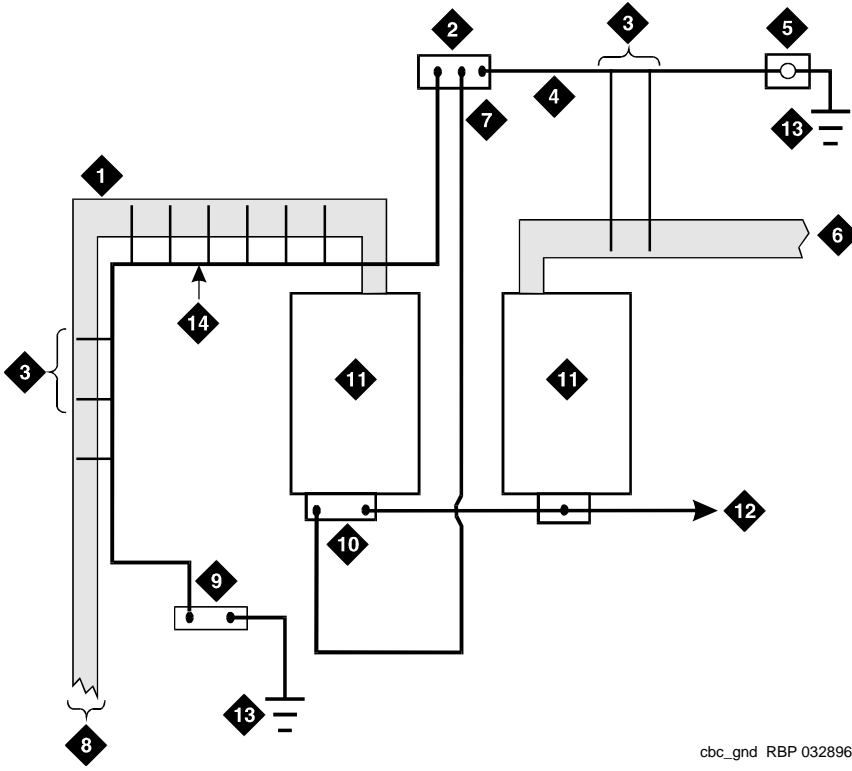
Install Coupled Bonding Conductor

The Coupled Bonding Conductor (CBC) connects to the single-point ground block and runs adjacent to pairs in an associated telecommunications cable. See [Figure 2-5](#). The mutual coupling between the bonding conductor and the pairs reduces potential differences in terminating equipment.

The conductor consists of a 10 AWG (#25) (2.5 mm²) wire tie-wrapped to the inside wiring cable and terminated at the CBC terminal bar at the Main Distribution Frame (MDF). A minimum of 12 inches (30.48 cm) spacing must be maintained between the CBC and other power and ground leads.

The 10 AWG (#25) (2.5 mm²) wire must be long enough to reach the telecommunications cables at the rear of the system cabinets, follow these cables to the MDF, and to terminate at the CBC.

1. Cut a 10 AWG (#25) (2.5 mm²) wire long enough to reach from the system's single-point ground block or DC power cabinet Ground Discharge Bar to the MDF CBC block.
2. Connect one end of the 10 AWG (#25) (2.5 mm²) wire to the single-point ground block (or Ground Discharge Bar).
3. Route the wire next to the 25-pair cables connecting to the trunk/auxiliary (purple) field.
4. Tie wrap the 10 AWG (#25) (2.5 mm²) wire to the 25-pair cables.
5. Connect the 10 AWG (#25) (2.5 mm²) wire to the MDF CBC ground block.
6. Repeat the above steps for each CBC ground wire installed.



cbc_gnd RBP 032896

Figure Notes

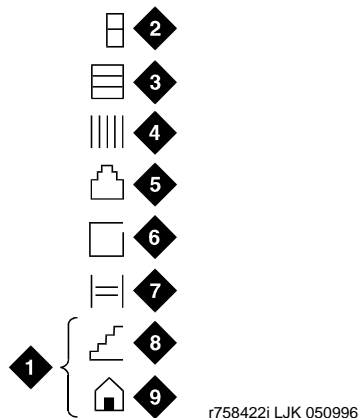
- | | |
|---|---|
| 1. 25-Pair Tip & Ring Cables to Cabinets | 8. To Network Cabinets |
| 2. Coupled Bonding Conductor (CBC) Terminal Block | 9. Battery Plant Ground Discharge Bar for Single-Point Ground |
| 3. Tie Wraps | 10. Cross-Connect Ground Block |
| 4. Cable Shield or Six Spare Pairs | 11. Main Distribution Frame (MDF) |
| 5. Ground on Carbon Block Protector or Equivalent | 12. To Other Cross-Connect Ground Blocks |
| 6. Trunk Cable to Network Interface | 13. Approved Ground |
| 7. 10 AWG (#25) (2.5 mm ²) Wire | 14. Coupled Bonding Conductor (CBC) |

Figure 2-5. Coupled Bonding Conductor

Label the Main Distribution Frame

Figure 2-6 shows the graphic symbols used on labels for the system, cross-connections, information outlets, and cables. The labels are color-coded to identify system wiring:

- Green — To Central Office (CO)
- Purple — To system ports
- Yellow — To auxiliary equipment and miscellaneous system leads
- Blue — To information outlets
- White — From Main Distribution Frame to satellite locations (3-pair)



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Figure Notes

- | | |
|--|--------------------------|
| 1. Write Floor or Building Identification on Label as Required | 5. Information Outlet |
| 2. Cabinet | 6. Site/Satellite Closet |
| 3. Carrier | 7. Tie Circuit |
| 4. Slot | 8. Floor |
| | 9. Building |

Figure 2-6. Label Graphic Symbols and Nomenclature

Each label identifies 2 rows on the terminal block. The upper half identifies the row above it and the lower half identifies the row below it. The labels are inserted into the clear plastic designation strips furnished with the terminal blocks. The strip is snapped in place between the terminal block rows. Label code number 1220A (comcode 103970000) contains all of the required labels.

2 Install Telecommunications Cabling
Label the Main Distribution Frame

2-14

Accessing and Activating the System

3

This chapter contains procedures for installing the management terminal and bringing the system up to a “no red LEDs” state. This chapter details how to:

- Access the System
- Activate the System
- Power Up the System
- Use Screens and Commands
- Administer the System
- Administer the Circuit Packs
- Set System Maintenance Parameters
- Administer Attendant Console
- Save Translations



CAUTION:

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed. This chapter describes basic system start-up procedures only and is not intended to identify all system alarms or error conditions.

Access the System

To administer the DEFINITY ECS, you must be able to access the system. With Release 7 and later, the DEFINITY ECS no longer requires a dedicated management terminal, known as a system administration terminal, or SAT. Personal computers and technician laptops equipped with DEFINITY Site Administration (DSA) or DEFINITY Network Administration (DNA) software are the primary support access for system initialization, aftermarket additions, and ongoing maintenance. For information on DSA or DNA, go to

http://www.bcs.lucent.com/sales_market/definity. SAT is now an option.

The following sections describe

- [Installing and using DSA](#)
- [Connecting a PC](#)

Installing and using DSA

To install DSA, your PC or laptop must meet the minimum requirements described in [Table 3-1](#):



NOTE:

For information on DNA, refer to *DEFINITY Network Administration Release 2 Installation and Configuration*.

Table 3-1. Minimum requirements to run DSA

Operating systems: MS Windows 95 MS Windows 98 MS Windows NT 4.0 MS Windows 2000	Processor/RAM: 486SL/66/16 MB Pentium/32 MB Pentium/64 MB Pentium-class 300 MHz/64 MB
Graphics adapter	SVGA with minimum screen resolution of 800 x 600
Floppy disk drive	3-1/2 in. 1.44-MB floppy disk drive
CD-ROM	CD-ROM drive (required to install DSA from CD)
Available hard disk space	A minimum of 100-MB free hard disk space is required. The requirement for disk space depends on the size and number of configuration data sets.

Continued on next page

Table 3-1. Minimum requirements to run DSA — Continued

Printer port	Standard PC or network printer port is required for connecting to a printer to produce station button labels.
Network adapter	May be required for network access to AUDIX and other network-connected systems.
Free serial ports	<p>One free serial port capable of 9600-bps operation is required for a connection to each serial device (ADU, modem, data module) or direct connection to a DEFINITY ECS.</p> <p>We recommend that PCs have at least a 16550A UART or 16550A UART simulator (capable of 56 kbps DTE-speed connections). USB and internal modems should emulate this hardware.</p> <p>A second serial port is required for simultaneous connection to AUDIX through a serial connection.</p>

To install DSA on your computer, place the DSA CD in the CD-ROM drive and follow the installation instructions. To start DSA or DNA, click on **Start > Programs > DEFINITY Site Administration**.

DSA supports SAT emulation, which is directly equivalent to using the SAT (see [Figure 3-1](#)). DSA also supports a whole range of other features, including the graphically enhanced DEFINITY interface (GEDI) (see [Figure 3-2](#)) and Data Import. For more information refer to the Help, Guided Tour, and Show Me accessed from the DSA Help menu.

3 Accessing and Activating the System Access the System

3-4

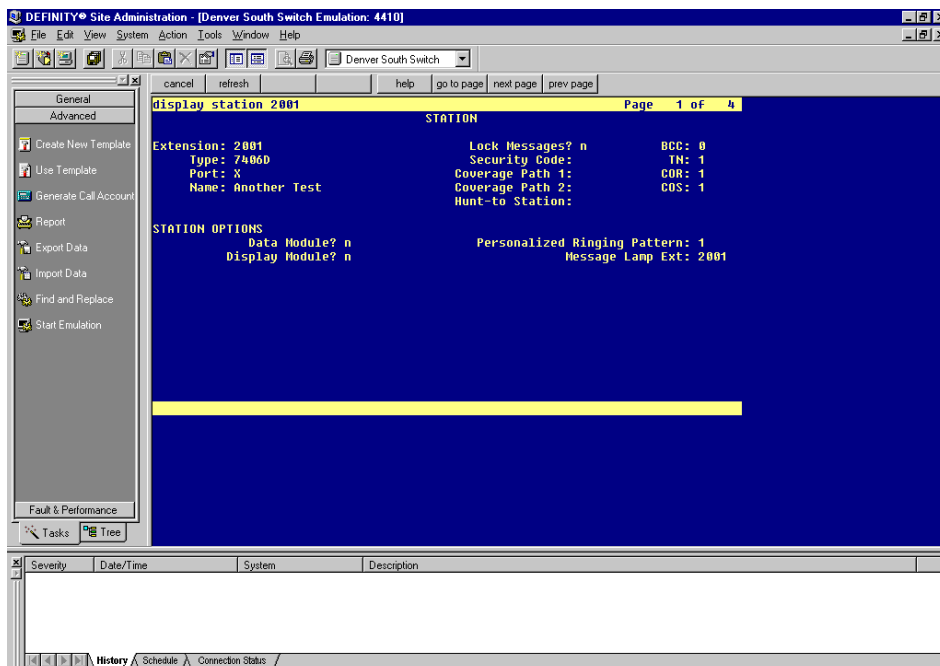


Figure 3-1. Typical DSA screen in SAT emulation mode

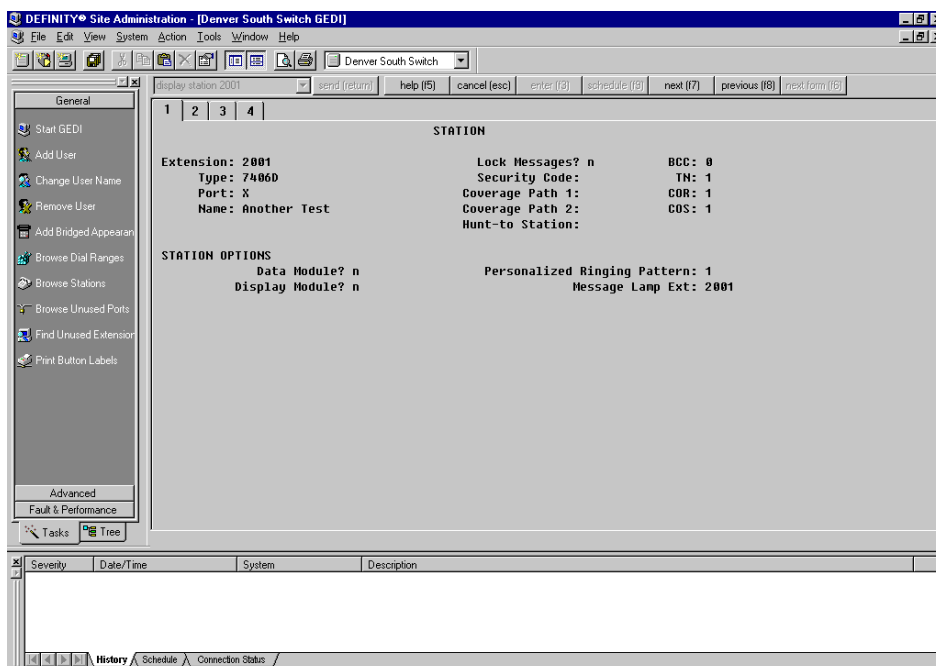


Figure 3-2. Typical DSA screen in GEDI mode

Connecting a PC

You can connect your PC or laptop to the DEFINITY ECS R8si/R8csi/R8r either directly (50 ft [15 m] or less) or remotely through a data module or a modem.

Connecting directly to the DEFINITY ECS

You can connect directly from the PC if it is 50 ft (15 m) or less from the DEFINITY ECS.

1. Connect the equipment as shown in [Figure 3-3](#). See [Table 3-2](#) for the connections by platform.

CAUTION:
 For a DC-powered system, install an EIA 116A Isolator (comcode 106005242) in series between the cable and the TERM, DOT, or Terminal Active connector.

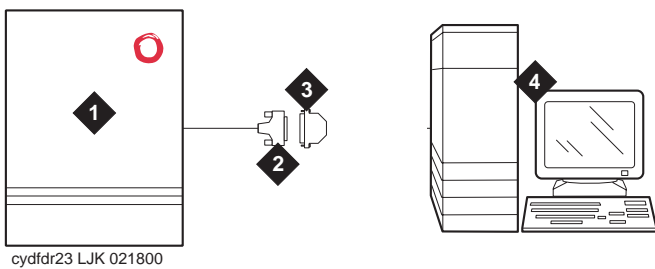


Figure Notes

- | | |
|-------------------------------------|----------------------------------|
| 1. DEFINITY ECS (PPN on R8r) | 3. 9-to-25 pin adapter if needed |
| 2. 50-ft (15-m) M25A cable (RS-232) | 4. Computer with DSA or DNA |

Figure 3-3. A typical direct connection

Table 3-2. PC connections by platform

Reliability	R8r	R8si	R8csi
Standard	Terminal Active	TERM	TERM
High/Critical	—	DOT	—

Connecting remotely to the DEFINITY ECS

To connect remotely to the system, you need one of the following pieces of hardware:

- [Connecting through a data module](#)
- [Connecting by analog modem to INADS port](#)

Connecting through a data module

If more than 50 ft (15 m) from the DEFINITY ECS, you can connect the PC through a data module.

1. Connect the equipment as shown in [Figure 3-4](#).

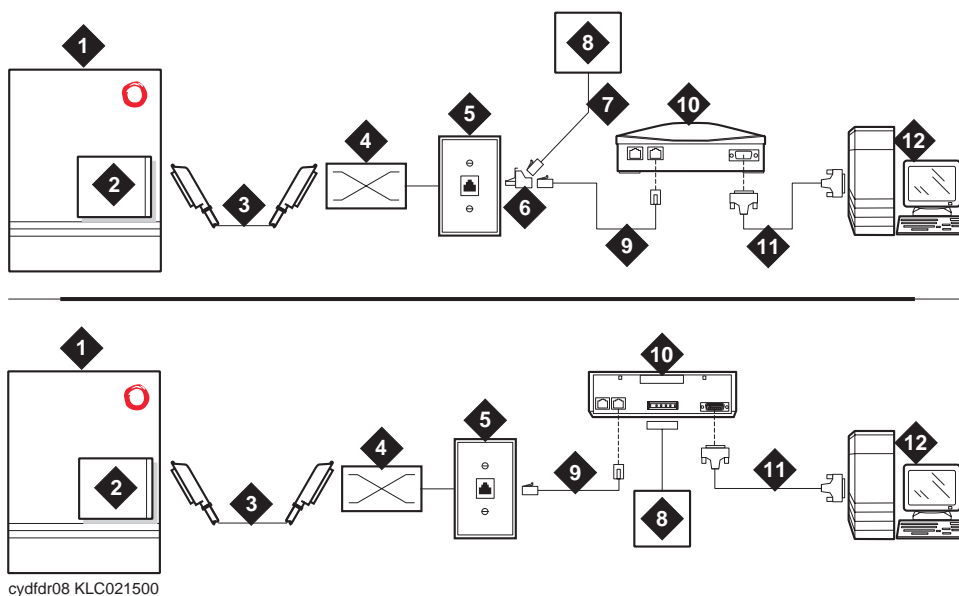


Figure Notes

- | | |
|-------------------------------------|---|
| 1. DEFINITY ECS | 8. Data module power supply |
| 2. Digital line circuit pack | 9. 7-ft (2-m) D8W modular cord |
| 3. B25A 25-pair cable | 10. Data module (8400B+ [top] or 7400B+ [bottom]) |
| 4. Main distribution frame (MDF) | 11. 50-ft (15-m) M25A cable (RS-232) |
| 5. 103A or Lucent modular wall jack | 12. Computer with DSA or DNA |
| 6. 400B2 adapter | |
| 7. D6AP power cord (8400B+ only) | |

Figure 3-4. A typical remote connection using an 8400B (top) or 7400B (bottom) data module

NOTE:

With a 7400A or 7400B+ data module, use a 4-wire digital line circuit pack. With the 8400B+ data module, use a 2-wire digital line circuit pack.

In place of a 7400B+ data module, you can use a 7400A data module. If you do, set the 7400A to DCE Mode.

2. Wire the digital line circuit pack to the wall jack as follows:
 - For a 7400B+, wire to the second and third pair of the wall jack.
 - For an 8400B+, wire to the first pair of the wall jack.

Setting the Data Module to DCE Mode

1. Cycle the power to the data module. The unit performs a self test and displays its operating mode.
2. Observe the display.
 - a. If the display reads DCE mode, proceed to the next section.
 - b. If the display reads DTE mode, complete the following steps:
 1. Remove the power cord from the unit.
 2. Remove the cover from the top rear of the unit.
 3. Remove the mode select circuit board and turn it around.
 4. Replace the cover.
 5. Connect the power cord. The unit performs a self test.

NOTE:

The power LED must be steady on. If the power LED is blinking, the data module is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jacks, and data module.

Adding a Data Module to the Switch

1. Add the data module to the switch by entering **add data-module number** or **add data-module next**.
2. In the `Type:` field, type **pdm** and press Enter.
3. In the `Port:` field, type the location of the digital line circuit pack connected to the data module (for example 01A1503).
4. If system access ports and hunt groups have not been set up, set them up. Refer to *DEFINITY ECS Release 8 Administrator's Guide*.

Testing Hardware Connections

In the following table, find your data module and follow the instructions for testing and troubleshooting it.

Type of Data Module	How to Test and Troubleshoot
8400B+	The red LED should be steady on. If the red and green LEDs are blinking, the unit is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and the 8400B+.
7400B+	The Power and TR LEDs should be steady on. If the Power and Data LEDs are blinking, the unit is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and the 7400B+.
7400A	Set the 7400A to DCE mode. The Power LED must be steady on. The DTR, DSR, DCD, RTS, and CTS settings must be highlighted in the display. If the Power LED is blinking, the data module is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and 7400A.

Setting the Data Module Operating Mode

1. Connect an RS-232 cable from the DSA/DNA computer to the data module. If you are using an 8400B+, connect the DSA/DNA computer to the data module using the supplied adapter cable.
2. Using a terminal emulator, connect to the serial port to which the data module is connected, and set the emulation to *vt100* mode.
3. Type **AT** at the prompt and press Enter. The data module should return an OK. If it does not, be sure that a standard RS-232 or EIA-232 cable is connected (not a null modem cable).
4. Set the operating mode as described in the following table.

Type of Data Module	How to set the operating mode
8400B+	Type AT&F and press Enter. Type ATS24=1 and press Enter. Type AT&W0 and press Enter to save the operating mode into non-volatile RAM.
7400A 7400B+	Type AT&F and press Enter. Type AT&W0 and press Enter to save the operating mode into non-volatile RAM.

5. Disconnect the terminal from the data module and reconnect the data module to the system cabling.

Setting the 7400B+ Options

1. Set the DIP switches for the 7400B+ using [Table 3-3](#). The DIP switches are located inside the unit. To access them
 - a. Remove the power cord from the unit.
 - b. Remove the cover from the top rear of the unit.
 - c. Set the dip switches.
 - d. Replace the cover.
 - e. Connect the power cord. The unit performs a self test.
2. If any switches were set in step 1, cycle the power to the data module so that the firmware can read the new switch settings.

Table 3-3. DIP Switch Settings (7400B+)

Option	DIP Switch	Setting
No Telephone Connected	1	On
Data Metering	5	Off
Suppress Touch-tone/Dial Tone	6	Off
Speakerphone Disable/Enable	7	Off
Busyout on Local Loop	8	Off
Unused DIP Switches	2, 3, and 4	Off

Connecting by analog modem to INADS port

You can connect a PC to the DEFINITY ECS through a modem.

1. Connect the equipment as shown in [Figure 3-5](#).

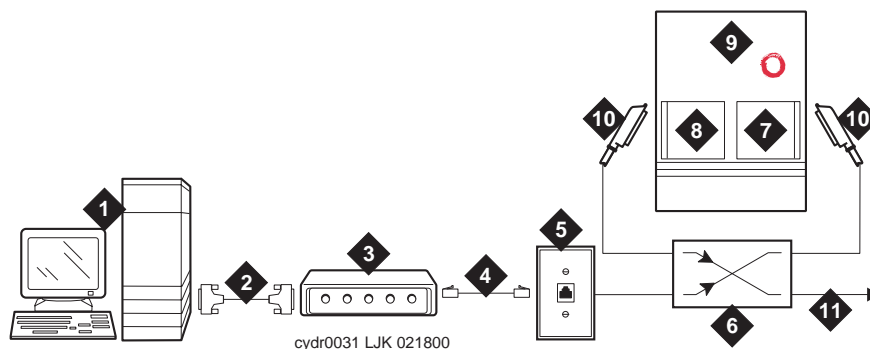


Figure Notes

- | | |
|--|---|
| 1. Computer with DSA or DNA | 7. Analog line circuit pack |
| 2. 50-ft (15-m) M25A cable (RS-232—
9-25 pin adapter if needed) | 8. Analog trunk circuit pack
Packet data line (R8r)
Data line (R8r) |
| 3. Analog modem | 9. DEFINITY ECS |
| 4. 7-ft (2-m) D2W modular cord | 10. B25A cable |
| 5. 103A or Lucent modular wall jack | 11. Analog line |
| 6. Main distribution frame (MDF) | |

Figure 3-5. A typical remote connection through a modem to access a remote DEFINITY ECS

Follow these steps to connect to the DEFINITY ECS through a modem.

1. Connect the computer to the modem.
2. Connect an analog telephone line to the left most analog-line port on the modem.
3. Make sure that the modem's DIP switches are set as shown in [Table 3-4](#).

Table 3-4. U.S. Robotics Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	Data Terminal Ready normal Data Terminal Ready override
2	UP DOWN	Verbal result codes Numeric result codes
3	UP DOWN	Suppress result codes Display result codes
4	UP DOWN	Echo offline commands No echo, offline commands
5	UP DOWN	Auto answer on first ring or higher if specified in NVRAM Auto answer off
6	UP DOWN	Carrier detect normal Carrier detect override
7	UP DOWN	Load NVRAM defaults Load factory defaults
8	UP DOWN	Dumb mode Smart mode

4. Plug the modem into an AC power outlet.
5. Turn on the modem.
6. Set the following port settings:

Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	hardware

Activate the System



CAUTION:

It may be necessary to reseat circuit packs. To prevent damage from static electricity, always wear an Electromagnetic Compatibility (EMC) wrist strap (comcode 900698226) when handling all system components.

Install Translation Flash Memory Card

1. Verify the write switch on the Translation Flash-Memory Card (Translation Card) is positioned down so the card can be written to. See [Figure 3-14](#).
2. Insert the Translation Card into the TN794 Network Control/Packet Interface (Net/Pkt) circuit pack in the direction indicated by the arrow on the label.

Power Up AC-Powered System

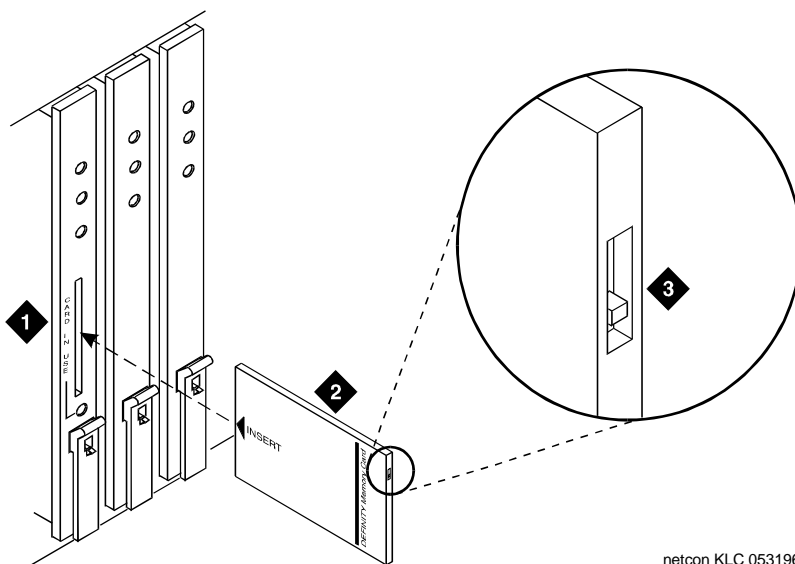
1. Set the associated circuit breakers on the AC power panel **ON**.



NOTE:

If the system is high or critical reliability, power-up the Expansion Port Network (EPN) first, then the Processor Port Network (PPN).
Always power up the control cabinet last.

2. At the rear of each cabinet, set the circuit breaker to **ON**. This starts the system initialization and test. Some red lights may be on but will be turned off by other procedures in this chapter.
3. Skip to [“Verify Messages on Terminal” on page 3-15](#).



netcon KLC 053196

Figure Notes

1. Slot in TN794 Network Control/Packet Control Circuit Pack
2. Insert Card in Direction of Arrow
3. Write Switch Positioned Down

Figure 3-6. Write Switch on Translation Card

Power Up DC-Powered System

NOTE:

If the system is high or critical reliability, power-up the Expansion Port Network (EPN) first, then the Processor Port Network (PPN). *Always* power up the control cabinet *last*.

1. At the DC Battery Cabinet (if installed), set the circuit breaker to **ON**.
2. At the DC Power Cabinet, set the circuit breakers on the associated rectifiers **ON**.
3. At the rear of each Power Distribution Unit (if installed), set the circuit breaker to **ON**.

This starts the system initialization and test. Some red lights may be on but will be turned off by other procedures in this chapter.

Verify Messages on Terminal

1. After several minutes, verify all tests pass. [Screen 3-1](#) displays the screen of a typical Release 8si system.



NOTE:

If any of the terminal messages indicate a test has failed or if the message "spe down mode" is displayed, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*, to clear the trouble, or call your Lucent Technologies representative.

```
INTERNAL REGISTER TEST          PASSED
LOOP DATA TEST                 PASSED
DUART TEST                      PASSED
ROM CHECKSUM TEST              PASSED
CONTROL STATUS TEST           PASSED
DCACHE TEST                    PASSED
ICACHE TEST                    PASSED
WRITE BUFFER TEST             PASSED
BTO TEST                       PASSED
MEM CONFIG TEST                PASSED
MEMORY FUNCTIONAL TEST         PASSED
MEMORY MODULE A STUCK BIT TEST PASSED
MEMORY MODULE A PARITY TEST    PASSED
MEMORY MODULE A BURST TEST     PASSED
MEMORY MODULE B STUCK BIT TEST PASSED
MEMORY MODULE B PARITY TEST    PASSED
MEMORY MODULE B BURST TEST     PASSED
MEMORY MODULE C STUCK BIT TEST PASSED
MEMORY MODULE C PARITY TEST    PASSED
MEMORY MODULE C BURST TEST     PASSED
VIRTUAL MEMORY TEST           PASSED
EXCEPTION TEST                 PASSED
TIMER TEST                     PASSED
MTP TEST                       PASSED
SANITY TIMER TEST              PASSED
ADDRESS MATCHER TEST           PASSED
FLASH TEXT CHECKSUM TEST       PASSED
RAM DATA CHECKSUM TEST        PASSED
RESET 4 (REBOOT PERFORMED)
```

Screen 3-1. Typical Start-up Messages

2. About two minutes after REBOOT PERFORMED is displayed, verify the screen displays: Login:

Screens and Commands

Screens

The system is administered using screens displayed on the terminal. The screens are used to add, change, display, list data, and to remove system and telephone features. To access a screen, enter a valid system command in response to the `command:` prompt.

Commands

System commands are standard words and phrases instructing the system to perform a specific function. The commands are arranged in a hierarchy of keywords; that is, enter one command to go to a different level. The commands contain three parts: ACTION, OBJECT, and QUALIFIER.

- ACTION is the first part of the command. When `command:` appears on the screen. The ACTION specifies the operation desired. Examples include **add**, **duplicate**, **change**, **remove**, **display**, **list**, and **save**.
- OBJECT is the second part of the command and specifies the particular object to be administered. Typical entries are **hunt-group**, **coverage path**, and **station**.
- QUALIFIER is the last part of the command. It is one or more words or digits used to further identify or complete the OBJECT. For example, *hunt group 15* or *station 3600*, where *15* and *3600* are qualifiers.

An example of the command line required to add a station with extension number *1234* is **add station 1234**. In this example, **add** is the ACTION, **station** is the OBJECT, and **1234** is the QUALIFIER. In the command line, spaces are required between the ACTION, OBJECT, and QUALIFIER.

To save time, enter enough letters for each part of the command to make it unique. For example, if you want to enter the command **change system-parameters country-options**, typing **cha sys coun** is sufficient.



NOTE:

The "craft" login may not be allowed to perform some of the steps needed to initialize the system. If access is denied to some of these procedures, contact your Lucent Technologies representative for assistance.

Getting Help

Use the HELP key for a list of options and the CANCEL key to back out of any command. Refer to *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*, for detailed procedures.

Administer the System

Contact the regional CSA (Customer Software Associate) to request an “init” login. The CSA assigns the Offer Category option. This option must be set before continuing with this installation. Limited command options are available until this option is set.

Log into the System

1. Verify the screen displays `Login:`
2. Type **craft** and press ENTER.
3. Verify the screen displays `password:`
4. Type **crftpw** and press ENTER. For security reasons, the password is not displayed as it is typed. The system verifies a valid login and password name were entered. If an invalid login or password name was entered, the screen displays `login incorrect:`

In this case, repeat the procedure using the correct login and matching password.

If the system recognizes the login and password name, the screen displays the software version.

5. Verify the screen display is similar to:

```
Terminal Type (513, 715, 4410, 4425, VT220): [715]
```
6. Type the number of the management terminal and press ENTER.
7. Verify the screen displays `command:`



NOTE:

The following sections describe some of the procedures used to access and change certain options. These sections are not intended to replace or modify the instructions provided in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Change Customer Options

The following features are part of the basic software package and do not need to be activated. They default to **y** (yes) on the Optional Features screen.

- ARS/AAR Partitioning
- Emergency Access to Attendant
- Hospitality (Basic)
- Service Observing

Use the following procedure to change the customer's optional features.

1. At the `command:` prompt, enter the **change system-parameters customer-options** and press Enter. A display similar to [Screen 3-2](#) appears.

```
change system-parameters customer-options                               Page 1 of 6

                                OPTIONAL FEATURES

      G3 Version: V8
      Location: 1

      G3 Version: V8                                Maximum Ports: 100
      Location: 1                                    Maximum XMOBILE Stations: 0
                                                    Maximum H.323 Trunks: 10
                                                    Maximum H.323 Stations: 10
                                                    Maximum IP SoftPhones: 10

(NOTE: You must logoff & login to effect the permission changes.)
```

Screen 3-2. Typical Customer-Options Form

2. Using the Customer Order, enable the optional features purchased by the customer (as shown by PEC codes on the Customer Order).

In Release 8 systems, a separate screen offers ASAI capability groups for selection in cases where the ASAI interface has been enabled. Change this screen in the same manner as Page 1 of the customer-options form.

3. When finished, logoff and back in to effect the changes.

Set Country Options

Certain country options need to be set to turn red failure indication LEDs off. Refer to [Table 3-5](#) for a list of country codes.

1. Verify the screen displays `command`:
2. Type **change system-parameters country options** and press Enter.

A screen similar to [Screen 3-3](#) is displayed. The cursor is set on the Companding Mode line.

```
change system-parameters country-options                               Page 1 of 21
      SYSTEM PARAMETERS COUNTRY-OPTIONS

      Companding Mode: A-Law                                Base Tone Generator Set: 4
      440Hz PBX-dial Tone? n                                440Hz Secondary-dial Tone? n
      Digital Loss Plan: 1
      Analog Ringing Cadence: 1                            Set Layer 1 timer T1 to 30 seconds? n
      Analog Line Transmission: 1                          Enhanced 84xx Display Character Set? y

TONE DETECTION PARAMETERS
      Tone Detection Mode: 6
      Interdigit Pause: short
```

Screen 3-3. Typical System Parameters Country-Options Screen

3. The default companding mode is mu-Law. If the country uses A-Law companding, type A-Law. Press Enter when this information is correct.

Other items eventually need to be entered on this screen, but this is all that must be done to turn the red alarm LEDs off.

Table 3-5. Country Codes

Country	Code	Country	Code
USA	1	France	12
Australia	2	Germany	13
Japan	3	Czechoslovakia	14
Italy	4	Russia	15
Netherlands	5	Argentina	16
Singapore	6	Greece	17
Mexico	7	China	18
Belgium	8	Hong Kong	19
Saudi Arabia	9	Thailand	20
United Kingdom	10	Macedonia	21
Spain	11		

4. If all red LEDs do not go off, reseal (unplug and reinsert) any *port* circuit packs displaying red LEDs.



CAUTION:

To avoid a disk crash, **never** reseal the DEFINITY AUDIX System without first shutting it down. Shut down the DEFINITY AUDIX System (and allow the disk to completely spin down) before unplugging the assembly. See [“DEFINITY AUDIX System Power Procedures” on page 3-33](#) for the proper procedures.

5. If the red LEDs still do not go off, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.



NOTE:

Ignore the red alarm indication LED on the TN767 or TN464/2464 DS1 circuit pack until after the DS1 circuit pack is administered. Alarms will appear in the Alarm Log when power is applied to the system before all equipment connecting to port circuit packs is installed. Normally, some alarms will be logged when power is applied to the system, but should be resolved quickly. If no equipment is connected to the port circuit packs, alarms associated with these ports can take up to four hours to log, but will clear automatically after all equipment is installed and operating correctly.

Change Craft Password

The password for the craft login *must be changed* by the installing technician to prevent unauthorized administration changes.



CAUTION:

After the password is changed, the new password must be safeguarded so no unauthorized administration changes can be made. This password MUST NOT BE REVEALED to the customer or to any unauthorized person.

Passwords are changed using the Change Password Screen. See [Screen 3-4](#).

1. Verify the screen displays `command`:
2. Type **change password craft**. Press Enter.

```
change password craft                                     Page 1 of 1
                PASSWORD ADMINISTRATION

Password of Login Making Change: _____

LOGIN BEING CHANGED
                Login Name: craft

LOGIN'S PASSWORD INFORMATION
                Login's Password: _____
                Reenter Login's Password: _____
```

Screen 3-4. Typical Change Password Screen

3. Verify the screen displays the Change Password Screen. The cursor is positioned on "Password for Login Making Change:"
4. Type the password assigned to the craft login (assigned as *crftpw* when system is shipped) and press Enter. The cursor is positioned on "Login's Password:".

5. Enter new password. Valid passwords consist of a combination of from four to eleven alpha or numeric characters. At least one letter and one number must be used in each password.
6. Press Enter. The cursor is positioned on "Reenter Login's Password:".
7. Type new password again and press ENTER.
8. Verify the screen displays:
 command successfully completed
 command:

Set Daylight Savings Rules

You can set up to 15 customized daylight savings time rules. If you have switches in several different time zones, you can set up rules for each. A daylight savings time rule specifies the exact time when you want to transition to and from daylight savings time. It also specifies the increment at which to transition.

⇒ NOTE:

The default daylight savings rule is 0, no daylight savings.

1. Type **change daylight-savings-rules** and press Enter.

DAYLIGHT SAVINGS RULES						
Rule	Change Day	Month	Date	Time	Increment	
0:	No Daylight Savings					
1:	Start: first <u>Sunday</u>	on or after <u>April</u>	<u>1</u>	at <u>2:00</u>	<u>01:00</u>	
	Stop: first <u>Sunday</u>	on or after <u>October</u>	<u>25</u>	at <u>2:00</u>		
2:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____
3:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____
4:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____
5:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____
6:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____
7:	Start: first _____	on or after _____	_____	at _____	_____	_____
	Stop: first _____	on or after _____	_____	at _____	_____	_____

2. Type the appropriate start and stop information in the Change Day, Month, Date, Time, and Increment (for example, **1:00** equals one hour) fields for each rule.

⇒ NOTE:

You can change any rule except rule 0 (zero). You cannot delete a daylight savings rule if it is in use on either the Locations or Date and Time screens.

3. Press Enter.

Set Date and Time

1. Type **set time** and press Enter.

```

                                DATE AND TIME
DATE
Day of the Week: Tuesday      Month: February
Day of the Month: 8           Year: 2000

TIME
Hour: 20   Minute: 30   Second: XX   Type: standard
Daylight Savings Rule: 0
    
```

Screen 3-5. Typical Date and Time Screen

2. Type the day of the week in English (Sunday through Saturday) and press TAB to move to next field. See [Table 3-6](#) for English day of the week names.

Table 3-6. English Day of the Week Names

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

3. The cursor is positioned on the `Month:` field. Type the current month in English (January through December). See [Table 3-7](#) for English month names. After the month is entered, press TAB to move to next field.

Table 3-7. English Month Names

Month Number	Month Name
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

4. The cursor is positioned on the `Day of the Month:` field. Type the day of month (1 through 31) and press `TAB` to move to the next field.
5. The cursor is positioned on the `Year:` field. Type the current year and press `Tab` to move to the next field.
6. The cursor is positioned on the `Hour:` field. Type the current hour for a 24-hour clock. See [Table 3-8](#). Press `Tab` to move to the next field.
7. The cursor is positioned on the `Minute:` field. Type current minute (0 through 59). Seconds cannot be set.
8. Type **standard** or **daylight savings** in the `Type` field.
9. Type the rule (number) in the `Daylight Savings Rule` field.
10. Press `Enter` when the information is correct.

Table 3-8. Conversion to 24-Hour Clock

Standard Time		Standard Time	
12-Hour	24-Hour	12-Hour	24-Hour
12:00 midnight	0000	12:00 noon	1200
1:00 am	0100	1:00 pm	1300
2:00 am	0200	2:00 pm	1400
3:00 am	0300	3:00 pm	1500
4:00 am	0400	4:00 pm	1600
5:00 am	0500	5:00 pm	1700
6:00 am	0600	6:00 pm	1800
7:00 am	0700	7:00 pm	1900
8:00 am	0800	8:00 pm	2000
9:00 am	0900	9:00 pm	2100
10:00 am	1000	10:00 pm	2200
11:00 am	1100	11:00 pm	2300

- Verify the screen displays:

`command` successfully completed

`command:`

- Type **display time**, and press Enter to verify date/time data.

Administer the Circuit Packs

After the equipment is installed (including circuit packs), the circuit packs must be administered. Refer to *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description* for more information.

The following information describes general administration information:

- Use the Circuit Packs form to administer circuit packs to carrier slots. The circuit packs must be installed (or assigned using the Circuit Packs form) before administering voice terminals, attendant consoles, or trunks.
- Each page of the form represents one carrier in the cabinet shown on the command line. All carriers and slots appear even if they are not included in the hardware.
- It is not necessary to fill in the Circuit Packs form if the circuit packs are installed at the time of administration.
- Refer to *DEFINITY Communications System Generic 3 Planning and Configuration*, 555-230-601, for more information about circuit pack administration and port assignment records.
- For initial installation, assign circuit packs to slots using the hardware configuration layout record from the factory or Customer Services Organization. Do not arbitrarily assign circuit packs to slots.
- When a circuit pack in a slot differs from what has been administered on the form, a “#” displays between the “Sfx” and “Name” fields.
- All slot fields are displayed.

Administration Commands

Use the following administration commands to administer the Circuit Pack form.

Table 3-9. Administration Commands

Action	Object	Qualifier ¹
change	circuit-packs	xx (cabinet number)
display	circuit-packs	xx (cabinet number) ['print' or 'schedule']

1. Brackets [] indicate the qualifier is optional. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered. "xx" is the cabinet number.



NOTE:

If no cabinet number is specified, this command defaults to "1."

Form Instructions

```
change circuit-packs                                     Page 1 of 5
                CIRCUIT PACKS
      Cabinet: 1                                     Carrier: A
                                                Carrier Type: processor
Slot Code  Sf Mode   Name
01: TN758                POOLED MODEM
02: TN726  B          DATA LINE
03: TN763  D          AUXILIARY TRUNK
04: TN750  C          ANNOUNCEMENT
05: TN2181             DIGITAL LINE
06: TN464  F          DS1 INTERFACE
07: TN2138             CO TRUNK
08: TN754  B          DIGITAL LINE
09: TN799  B          CONTROL-LAN
10: TN767  D          DS1 INTERFACE
Slot Code  Sf Mode   Name
01: TN758                POOLED MODEM
02: TN726  B          DATA LINE
03: TN763  D          AUXILIARY TRUNK
04: TN750  C          ANNOUNCEMENT
05: TN2181             DIGITAL LINE
11: TN464  F          DS1 INTERFACE
12: MEDPRO             RESERVED-IP
13: TN802  B          MAPD BOARD
14: TN2149             ANALOG LINE
15: TN754  B          DIGITAL LINE
16: TN754  B          DIGITAL LINE
'#' indicates circuit pack conflict.
```

Screen 3-6. Change Circuit-Packs Screen

NOTE:

Each page of the form represents 1 carrier within the cabinet specified on the command line. For R8si configurations, all carriers and slots appear even if they are not included in the actual hardware. This supports reconfiguration.

- **Cabinet** — Display-only field. This field shows the cabinet number as entered on the command line.
- **Carrier** — Display-only field. This field shows the letter of the carrier (A through E) circuit packs are being administered on.
- **Carrier Type** — Display-only field. This field shows the type of carrier.
- **Slot** — Display-only field. The slot equates to the physical slot of the given carrier; the number of slots displayed depends on the system being configured.

For R8si configurations, ALL slots that could possibly be administered are displayed even if they do not apply to the current configuration of the system. This is to accommodate the situation when a system is being reconfigured.

[Table 3-10](#) lists the slots to use, and the circuit pack types that may be administered in those slots, for each combination of Cabinet/Carrier/Carrier Type in a R8si configuration.

Table 3-10. Circuit Pack Cabinet Layout

Cabinet Layout	Carrier Type	Use Slots	Circuit Pack Types
1A (SCC Basic Control Cabinet)	processor	01-10	All port circuit packs
1A (SCC Enhanced Control Cabinet)	processor	01-16	All port circuit packs
1B (SCC Duplicated Control Cabinet)	processor	01-10	All port circuit packs
1B, C, D (SCC Port Cabinet)	port	01-18	All port circuit packs
2A & 3A (SCC Expansion Control Cabinet)	expansion-control	01	TN570, TN776
		02-17	All port circuit packs
2B, C, D (SCC Port Cabinet) 3B, C, D	port	01-18	All port circuit packs

- **Code** — Enter the circuit pack code ("TN" followed by a 3- or 4-digit number). If there is a physical circuit pack installed in the slot, the entry must match that of the circuit pack. If there is equipment administered on a slot, the equipment must be removed from the circuit pack before the circuit pack can be changed or removed.
- **Sfx** — Enter the circuit pack suffix, if applicable.
- **Name** — Display-only field. This field shows the alphanumeric name of the circuit pack (such as Digital Line).



NOTE:

When the circuit pack physically inserted in the slot differs from what has been administered on this form, a "#" displays between the Sfx and Name fields.

Implementation Notes

[Screen 3-6](#) shows all fields that may be displayed. The fields that appear on a particular screen may vary depending upon the system configuration being administered.

The number of slot fields displayed may vary depending on the system being configured. For R8si configurations, all possible slots display.

Set System Maintenance Parameters

1. Verify the screen displays command:
2. Type **change system-parameters maintenance** and press Enter. Verify that the screen displayed is similar to [Screen 3-7](#). The screen shows default values and the cursor is positioned on Product Identification: line.

```
change system-parameters maintenance                               Page 1 of 4

      MAINTENANCE-RELATED SYSTEM PARAMETERS
OPERATIONS SUPPORT PARAMETERS
      Product Identification: 1000000000
      First OSS Telephone Number:                               Abbrev Alarm Report? y
      Second OSS Telephone Number:                               Abbrev Alarm Report? n
      Alarm Origination to OSS Numbers: neither
      Cleared Alarm Notification? n                               Suspension Threshold: 5
      Restart Notification? n
      Test Remote Access Port? n
      CPE Alarm Activation Level: none
      Customer Access to INADS Port? y
      Repeat Dial Interval (mins): 7
SCHEDULED MAINTENANCE
      Start Time: 01 : 00                                         Stop Time: 06 : 00
      Daily Maintenance: daily                                     Save Translation: daily
                                                                Command Time-out (hours): 2
      Control Channel Interchange: no                             System Clocks Interchange: no
      SPE Interchange: no                                         EXP-LINK Interchange: no
```

Screen 3-7. Typical Display System-Parameters Maintenance Screen



CAUTION:

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

Administer Attendant Console

1. Type **craft** at the `login:` prompt.
2. Type **display system-parameters country-options** and press Enter to verify the system's companding mode for its local stations is set to the desired value (usually, A-Law for Europe and mu-Law for North America and Japan).



NOTE:

For detailed information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the International Technical Assistance Center (ITAC).

3. Administer other forms listed under Attendant Console in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Save Translations

The **save translation** command copies the current system translations onto the translation card. For standard reliability systems, one translation card plus one backup is required. For high or critical reliability systems, two translation cards plus two backups are required.



CAUTION:

Do not attempt to save translations on the orange-labeled generic program card. Use the white translation card.

The following procedure can be used to save system translations on the original card(s) and can also be used to make a backup card or cards:

1. Verify the screen displays `command:`
2. Type **save translation** and press Enter.
3. After several minutes, a display similar to [Screen 3-8](#) appears.

```
save translation

                                SAVE TRANSLATION

Processor  Command Completion Status              Error Code
-----
SPE-A     Success                               0

Command successfully completed
Command:
```

Screen 3-8. Typical Save Translation Screen

4. Verify a **0** is displayed in the Error Code column for each Switch Processing Element (SPE). A **0** indicates the save translation was successfully completed. If a **0** did not appear, the save translation did not complete. Record the "error code number" and the "error message" and notify your Lucent Technologies representative.
5. Remove the original translation card from the TN794 circuit pack and replace with backup card.
6. Repeat steps 1 through 4 for the backup card.
7. Remove the backup translation card from the TN794 circuit pack and replace with the original translation card.
8. Label the backup card with the date and time of the backup. Store the backup card in a secure place.
9. Repeat this process for high or critical reliability systems.

Add Translations

1. Refer to *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*, to add new terminals to the system.
2. Enter the save translations command at the `command:` prompt to merge these translations with the contents of Flash memory.

Installation Completion

After the system is activated, it must be tested for proper operation. See [Chapter 4, "Test the System"](#).

After completion of the system tests, the telephones and other equipment must be installed. See [Chapter 5, "Install and Wire Telephones and Other Equipment"](#).

The system is then administered by adding the customer data to match the wiring, telephones, and other equipment. See *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

After the system is administered, the telephones and other equipment are tested. See Chapter 6, "Test Telephones and Other Equipment."

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Verify Alarm Origination to INADS

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination.

Log off the System

Log off the system to prevent unauthorized changes to data. To log off:

1. Enter **logoff** at the `command:` prompt.
2. The `login:` prompt appears on the screen.

DEFINITY AUDIX System Power Procedures

Manually Power Down AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Using a pointed object, such as a paper clip or pen (do not use a pencil), press the Boot/Shutdown button. The button is located at the top right portion of the front panel.
2. Hold the Boot/Shutdown button in until the LCD display flashes the message `MSHUT`.
3. Release Boot/Shutdown button



NOTE:

The DEFINITY AUDIX System takes about five minutes to shut down. The "heartbeat" indication on the display continues to flash.

Manually Power Up AUDIX System

1. Using a pointed object such as a paper clip or a pen (do not use a pencil), press the Boot/Shutdown button.
2. Hold the Boot/Shutdown button in until the display indicates the message, `BTEST`, steady on.
3. Release the Boot/Shutdown button. The DEFINITY AUDIX System takes approximately five minutes to power up.

- The display has the following sequence of steady on messages:

- `OSINIT`
- `OS`
- `AINIT`
- `ADX`

- The DEFINITY AUDIX System is now powered up. When the system is in the active state, the display indicates `ADX`, and the red LED is off.



NOTE:

Upon the system powering up, the DEFINITY AUDIX System automatically reboots. This sequence may show an `MD` or `MJ` `ADX` alarm in the display until the system has powered up. When the system has completed its power up sequence, the DEFINITY AUDIX System display reads: `ADX`.

3 Accessing and Activating the System
DEFINITY AUDIX System Power Procedures

3-34

Test the System

4

The following tests verify the Time Division Multiplexing (TDM) cables, terminators, and the Inter-Cabinet Cables (ICC). If a FAIL Result code is seen or other problems are indicated, check these cables. If problems persist, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

The status of the system should be reviewed first, followed by testing the tone-clock, TDM bus, and duplication link in the Processor Port Network (PPN). Test the expansion interfaces, tone-clock(s), TDM buses, and duplication in the Expansion Port Networks (EPNs).

 **NOTE:**

Circuit pack positions are usually given by cabinet, carrier, and slot. They may also be given by port. The term “cabinet” refers to a stack of Single-Carrier Cabinets making up one port network. A port network is defined as a group of cabinets connected together with one TDM bus.

 **CAUTION:**

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

Check System Status for Each Cabinet

The system status may suggest problem areas. Specific tests later provide more specific diagnostic information.

1. Verify the terminal screen displays:
 command:
2. Type **status system all-cabinets** and press Enter.
3. Verify the screen displays system status screens similar to [Screen 4-1](#).

```

status system all-cabinets                               Page 1 of 3   SPE A
                SYSTEM STATUS CABINET 1

                SELECT  SPE ALARMS  TONE/  SERVICE  SYSTEM  SYSTEM
                SWITCH  MAJOR  MINOR  CLOCK  STATE  CLOCK  TONE
SPE  MODE
1A  active                auto  0    0      1A    in    standby standby
1B  maint/init           auto  0    0      1B    in    active  active

                SERVICE  CONTROL  DEDICATED  SERVICE  BUS ALARMS  BUS  OPEN BUS
                STATE   CHANNEL  TONES    PKT     STATE  MAJOR  MINOR  FAULTS  LEADS
1A  in                  y      n      1      in
1B  in                  n      y

EMERGENCY  SELECT  SERVICE  CABINET
TRANSFER  SWITCH  STATE  MODE  TYPE
1A  auto-on  01A01-02A01  in    standbySCC
1B  auto-on  01B01-02B02  in    active
    
```

Screen 4-1. Sample System Status Screen for Cabinet 1 (Page 1 of 3)



NOTE:

In the first section of the report, all Tone-Clocks should report a SERVICE STATE of in.

In the second section of the report, all TDM buses should report a SERVICE STATE of in.

In the third section of the report, all expansion links should report a SERVICE STATE of in, and, under EXP-LINK, the cabinet/carrier/slot numbers for the fiber optic cables are listed. For example, 01A01 in [Screen 4-1](#) refers to cabinet stack 01, carrier A, and slot 01.

4 Test the System

Check System Status for Each Cabinet

4-3

```

status system all-cabinets
                                     Page 2 of 3 SPE A
SYSTEM STATUS CABINET 2

SELECT SPE ALARMS TONE/ SERVICE SYSTEM SYSTEM
SWITCH MAJOR MINOR CLOCK STATE CLOCK TONE
1A active auto 0 0 2A in active active
1B maint/init auto 0 0 2B in standby standby

SERVICE CONTROL DEDICATED SERVICE BUS ALARMS BUS OPEN BUS
TDM STATE CHANNEL TONES PKT STATE MAJOR MINOR FAULTS LEADS
2A in y n 2
2B in n y

EMERGENCY SELECT SERVICE CABINET
TRANSFER SWITCH EXP-LINK STATE MODE TYPE
2A auto-on 01A01-02A01 in standby MCC
01B01-02B02 in active
    
```

Screen 4-2. Sample System Status Screen for Cabinet 2 (Page 2 of 3)



NOTE:

In the first section of the report in [Screen 4-2](#), all Tone-Clocks should report a SERVICE STATE of in for Cabinet 2.

In the second section of the report, all TDM buses should report a SERVICE STATE of in.

In the third section of the report, all expansion links should report a SERVICE STATE of in, and, under EXP-LINK, the cabinet/carrier/slot numbers for the fiber optic cables are listed.

Check Circuit Pack Configuration

The list configuration report provides a list of circuit packs connected to the system and recognized by the software.

1. Verify the screen displays `command`:
2. Type **list configuration all** and press Enter.
3. Verify the screen displays list configuration similar to [Screen 4-3](#). Make sure the software is communicating with each circuit pack (except power supply circuit packs). Wait until after the diagnostic tests later in this chapter before attempting to correct any problems.
4. Note any displays for boards that say in the VINTAGE column: NO BOARD or CONFLICT.

```
list configuration all                                     Page 1
                                                         SYSTEM CONFIGURATION
Board
Number   Board Type           Code      Vintage   Assigned Ports
u=unassigned t=tti p=psa
01A01    EXPANSION INTRFC         TN570B   000001
01A03    DID TRUNK                TN459    000004   u u u u u u u u
01A04    DID TRUNK                TN436    000004   u u u u u u u u
01A07    TIE TRUNK                TN439    000004   u u u u
01A09    ANNOUNCEMENT            TN750    000007   01 02 03 04 05 06 07 08
                                                09 10 11 12 13 14 15 16
01B01    EXPANSION INTRFC         TN570    000009
01B02    TONE DETECTOR           TN748D   000002   01 02 03    05 06 07
01B03    DATA LINE               TN726    000012   u u u u u u u u
01B08    BRI LINE                 TN556B   000003   u u u u u u u u
                                                u u u u u u u u
01C01    ANALOG LINE              TN746B   000006   u u u u u u u u
                                                u u u u u u u u

press CANCEL to quit -- press NEXT PAGE to continue
```

Screen 4-3. Sample System Configuration Screen — Page 1



NOTE:

A “u” indicates unassigned ports and a number indicates the port has been translated.

Test Time Division Multiplexing Bus in Processor Port Network

1. Verify the screen displays command :
2. Type **test tdm port-network 1** and press Enter.
3. Verify the screen displays the results of this test. See [Screen 4-4](#).

```
test tdm port-network 1
```

TEST RESULTS

Port	Maintenance Name	Alt. Name	Test No.	Result	Error Code
PN 01A	TDM-BUS		294	PASS	
PN 01A	TDM-BUS		296	PASS	
PN 01A	TDM-BUS		297	ABORT	1005
PN 01B	TDM-BUS		294	PASS	
PN 01B	TDM-BUS		296	ABORT	1005
PN 01B	TDM-BUS		297	PASS	

```
Command successfully completed
```

```
Command:
```

Screen 4-4. Sample Test Results for TDM Bus Port Network 1

4. If the result is **FAIL** for any test, check the connectors of the TDM bus cables in Processor Port Network (PPN) 1.

Test Tone-Clock Boards

Testing the Tone-Clock board also detects problems with the TDM bus cables.

1. Verify the screen displays `command`:
2. Type **test tone-clock 1a** and press Enter.
3. Verify page 1 displays the test results similar to [Screen 4-5](#).

```
test tone-clock 1a
```

```
TEST RESULTS
```

Port	Maintenance Name	Alt. Name	Test No.	Result	Error Code
01A	TONE-BD		46	PASS	
01A	TONE-BD		52	PASS	
01AXX01	ETR-PT		42	PASS	
01AXX01	ETR-PT		43	PASS	
01AXX02	ETR-PT		42	PASS	
01AXX02	ETR-PT		43	PASS	
01AXX03	ETR-PT		42	PASS	
01AXX03	ETR-PT		43	PASS	
01AXX04	ETR-PT		42	PASS	
01AXX04	ETR-PT		43	PASS	
01AXX05	ETR-PT		42	PASS	
01AXX05	ETR-PT		43	PASS	
01AXX06	ETR-PT		42	PASS	
01AXX06	ETR-PT		43	PASS	

```
Command successfully completed
```

```
Command:
```

Screen 4-5. Sample Test Results for Tone-Clock 1A

Test Expansion Interface Circuit Packs

Check each Expansion Interface (EI) circuit pack in the system.

1. Verify the screen displays `command`:
2. Type **test board xxx** where **xxx** is the cabinet, carrier, and slot for an Expansion Interface (EI) circuit pack in the system, and press Enter.



NOTE:

Labels on the port network and carrier and on the strip under the circuit pack contain this information.

3. Verify the screen displays test results similar to [Screen 4-6](#). This example is for board 2a01.

TEST RESULTS

Port	Maintenance Name	Alt. Name	Test No.	Result	Error Code
02A01	EXP-INTF		237	PASS	
02A01	EXP-INTF		238	PASS	
02A01	EXP-INTF		240	PASS	
02A01	EXP-INTF		241	PASS	
02A01	EXP-INTF		244	PASS	
02A01	EXP-INTF		316	PASS	

Screen 4-6. Sample Test Results for Expansion Interface Board 2A01

4. If any result is FAIL, check the connections for the fiber optic link.
5. Repeat Steps 2 and 3 for each Expansion Interface circuit pack.

4 Test the System

Test Time Division Multiplexing Bus for Each Expansion Port Network

4-8

Test Time Division Multiplexing Bus for Each Expansion Port Network

Check each TDM bus for each Expansion Port Network (EPN) in the system.

1. Verify the screen displays `command`:
2. Type **test tdm port-network 2** and press Enter.
3. Verify a test results screen similar to [Screen 4-7](#) is displayed:

```
test tdm port-network 2
```

TEST RESULTS

Port	Maintenance Name	Alt. Name	Test No.	Result	Error Code
PN 02A	TDM-BUS		294	PASS	
PN 02A	TDM-BUS		296	PASS	
PN 02A	TDM-BUS		297	ABORT	1005
PN 02B	TDM-BUS		294	PASS	
PN 02B	TDM-BUS		296	ABORT	1005
PN 02B	TDM-BUS		297	PASS	

```
Command successfully completed
```

```
Command:
```

Screen 4-7. Sample Test Results for Time Division Multiplexing Bus Port Network 2

4. If result is `FAIL` for any test, check the connectors of the TDM bus cables in Processor Port Network (PPN) 2.
5. Repeat these steps for each Expansion Port Network (EPN) to check the TDM bus cables.

- 4 Test the System
Test Tone-Clock for Each Expansion Port Network

4-9

Test Tone-Clock for Each Expansion Port Network

1. Verify the screen displays `command` :
2. Type **test tone-clock 2A** where **2A** is the cabinet and carrier number for one of the Tone-Clocks installed, and press `Enter`.

If any result is `FAIL`, check the associated TDM bus cables and intercabinet cables in the Expansion Port Network (EPN).

3. Repeat Step 2 for each installed Tone-Clock circuit pack.

Test Tone-Clock Interchange for Each Expansion Port Network

If the system is critical reliability, test the Tone-Clock interchange for each Expansion Port Network (EPN).

1. Verify the screen displays `command` :
2. Type **status system all-cabinets** and press `Enter`. This displays the location of the Standby Tone-Clock.
3. Type **set tone-clock xx** where **xx** is the Port-Network/Carrier for the Standby Tone-Clock. Press `Enter`.
4. Type **status system all-cabinets** and press `Enter`.
5. Verify the duplicated Tone-Clock is active using the information displayed on the screen.

If any problems are indicated, check the TDM cables in the associated Expansion Port Network (EPN).

- 4 Test the System
Test Expansion Interface Exchange for Each Expansion Port Network

4-10

Test Expansion Interface Exchange for Each Expansion Port Network

If the system is critical reliability, test the expansion interface exchange for each Expansion Port Network (EPN).

1. Verify the screen displays command :
2. Type **status system all-cabinets** and press Enter.

This displays the standby expansion link. See [Screen 4-8](#).

```
status system all-cabinets
                                SYSTEM STATUS CABINET 1
EMERGENCY      SELECT          SERVICE          CABINET
TRANSFER       SWITCH          STATE          MODE          TYPE
1A             unavail         01A01-02A01   in            standby   ESCC
1B             auto-on          01B01-02B02   in            active
               -
               -
```

Command successfully completed

Command:

Screen 4-8. Sample of System Status before Expansion Link is Set

3. Type **set expansion-link xxxx** where **xxxx** is the either one of the cabinet, carrier, and port locations of the standby expansion link.
4. Verify the screen displays:
Command successfully completed
Command:
5. Type **status system all-cabinets** and press Enter. A screen similar to [Screen 4-9](#) is displayed.

4 Test the System

Check Circuit Pack Configuration

4-11

```
status system all-cabinets
                                SYSTEM STATUS CABINET 1

EMERGENCY   SELECT             SERVICE             CABINET
TRANSFER    SWITCH             STATE              MODE              TYPE
1A          auto-on            01A01-02A01      in                active            ESCC
1B          auto-on            01B01-02B02      in                standby
```

Command successfully completed

Command:

Screen 4-9. Sample of System Status after Expansion Link is Set

6. Verify the MODES of the expansion links have changed.
7. If any problems are indicated, check the TDM cables and the inter-cabinet cables (ICC) in the associated Expansion Port Network (EPN).

Check Circuit Pack Configuration

1. Verify the screen displays `command:`
2. Type **list configuration all** and press Enter.
3. Verify all circuit packs are listed in the reports.

Refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*, to resolve any discrepancies.

Save Translations, if Required

If any administration changes have been made, save and make a back up copy of the translations. See [Chapter 3, "Accessing and Activating the System"](#) for instructions.

Next Steps

1. Install the telephones and other equipment. These procedures are in [Chapter 5, “Install and Wire Telephones and Other Equipment”](#).
2. Administer the features, telephones, and other equipment according to customer data found on the provisioning plan. Use the procedures in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.
3. After the system is administered, test the telephones and other equipment using [Chapter 6, “Test Telephones and Other Equipment”](#).

NOTE:

It may be more efficient to install each hardware component, administer it, and test it before going on to install another component. As an example, install the attendant console using the procedures in [Chapter 5, “Install and Wire Telephones and Other Equipment”](#), administer it using the procedures in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*, and test it using the procedures in [Chapter 6, “Test Telephones and Other Equipment”](#).

CAUTION:

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

Install and Wire Telephones and Other Equipment

5

The wiring procedures are the same for most of the DEFINITY System telephones and other equipment. This section provides wiring examples of these similar installation procedures. These are examples only and actual wiring procedures may vary at each site. All wiring pinouts for all circuit packs in this chapter can be found in the tables at the end of this chapter.

Voice and Data Terminals

The system can be connected to all DTE terminals and have RS-232 (or EIA-232) or DCP interfaces.

Telephone Connection Example

The 302C1 Attendant Console is used to describe a typical telephone connection. This information is typical of the 603E, 84xx (4-wire), and 94xx telephones.

The attendant console always requires auxiliary (adjunct) power (-48 VDC). Power is connected to the console through Pins 7 and 8 of the information outlet. See [Figure 5-1](#). Only three consoles can be powered by the system through the AUX connector. When possible, the primary console should be powered from the system so it has the same power failure backup as the system.

The maximum cabling distance for the console powered from the cabinet is 350 feet (100 meters).

The general steps to connect a telephone are:

1. Choose a device to connect such as a 302C1 Attendant Console.
2. Choose the port circuit pack and its carrier and slot number, such as cabinet 1, carrier C, slot 02.
3. Choose a port circuit on the port circuit pack. Such as Port 05.

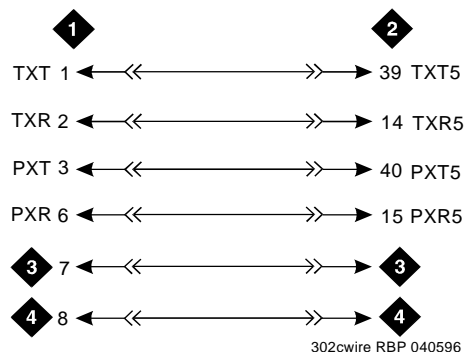


Figure Notes

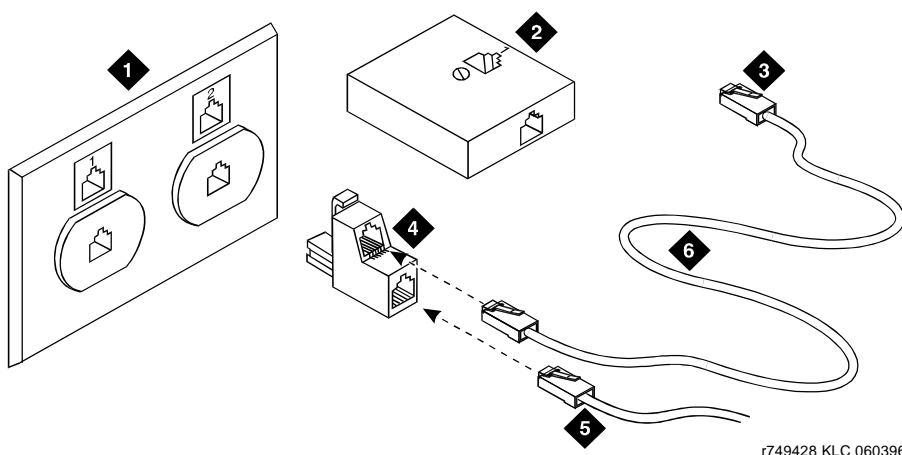
- | | |
|--|-------------------------------|
| 1. 302C1 Attendant Console | 3. -48 VDC From Adjunct Power |
| 2. 4-wire Digital Line Circuit Pack
(Position 1C02) | 4. Ground From Adjunct Power |

Figure 5-1. 302C1 to 4-wire DCP Wiring

4. Install cross-connect jumpers to wire the terminal to the port circuit pack. See [Figure 5-1](#). This pinout is for the 4-wire Digital Line circuit pack.
5. For terminals needing adjunct power, wire -48 VDC and ground to appropriate pins on the terminal. See [Figure 5-1](#).

Connect Adjunct Power

The 400B2 adapter is convenient for connecting local -48 VDC power to a modular plug. See [Figure 5-2](#).



r749428 KLC 060396

Figure Notes

- | | |
|---------------------------------------|---|
| 1. Flush-Mounted Information Outlet | 4. 400B2 Adapter |
| 2. Surface-Mounted Information Outlet | 5. To Telephone |
| 3. To Individual Power Unit | 6. Destination Service Access Point (DSAP) Power Cord |

Figure 5-2. 400B2 Adapter Connecting to a Modular Plug

Adjunct power can be provided from the equipment room or equipment closet with 1145B power unit. See [“Install the 1145B Power Supply” on page 5-38](#).

Each port network can provide power for up to three attendant consoles. This source of power is preferred for the attendant consoles because it has the same battery backup as the system. See [Table 5-2](#).

Adjunct power can be provided locally at the telephone or console by either the 1151A1 or 1151A2 Power Supply. See [“1151A1 and 1151A2 Power Supplies” on page 5-47](#).

Analog Station or 2-Wire Digital Station Example

This example is typical of the 2-wire digital stations (603E, 84xx, 94xx, 302C1), 2-wire analog stations (500, 2500, 71xx), analog Central Office (CO) trunks, Direct Inward Dial (DID) trunks, and external alarms. See [Figure 5-3](#).

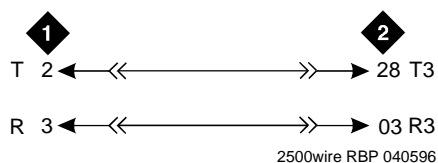


Figure Notes

1. 2500-Type Analog Station
2. TN2183 Analog Line Circuit Pack, Position 1C01

Figure 5-3. 2500-Type Analog Telephone Wiring

1. Choose a peripheral to connect (such as a 2-wire digital station).
2. Choose the port circuit pack to use and its carrier and slot number (from [Table 5-3](#)). For example: TN2183 Analog Line, Cabinet 1, Carrier C, Slot 1.
3. Choose a port circuit on the port circuit pack, for example port 3.
4. Install cross-connect jumpers to connect the pins from the 2-wire digital station to the appropriate pins on the port circuit pack.
5. Administer using *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Analog Tie Trunk Example

This example shows how to connect analog tie trunk wiring from one DEFINITY System to another DEFINITY System.

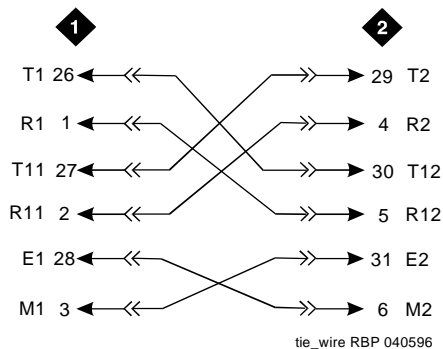


Figure Notes:

1. External Trunk or Adapter
2. Tie Trunk Circuit Pack (Position 1C05)

Figure 5-4. Analog Tie Trunk Wiring

1. Set the option switches on the port circuit pack (such as TN760) as described in [Appendix A, "Option Switch Settings"](#).
2. Install cross-connect jumpers to connect the pins from the tie trunk circuit pack to the appropriate leads on the external tie trunk. Names of the tie trunk leads must be determined from the manufacturer or supplier of the external trunk circuit. The example in [Figure 5-4](#) shows a DEFINITY System tie trunk connected to a DEFINITY System tie trunk.
3. Administer on the Trunk Group Screen of the management terminal. See *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*, for more details.

Digital Tie Trunk Example

This example shows how to connect digital tie trunk wiring from one DEFINITY System to another DEFINITY System. See [Figure 5-5](#).

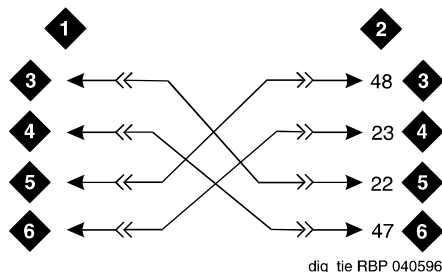


Figure Notes

- | | |
|--|------------------------------|
| 1. External Trunk | 4. LO (Balanced Output Pair) |
| 2. Digital Trunk Circuit Pack, Position 1C06 | 5. LI |
| 3. LO | 6. LI (Balanced Input Pair) |

Figure 5-5. Digital Tie Trunk Wiring

1. Install cross-connect jumpers to connect the pins from the digital trunk circuit pack to appropriate pins on the manufacturer's or supplier's external digital trunk.
2. Set option switches on the port circuit pack (Digital Trunk) according to [Appendix A, "Option Switch Settings"](#).
3. Administer on the DS1 and Trunk Group Screens of the management terminal. See *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*, for more details.

DS1 Tie Trunk Example

Digital Signal Level 1 (DS1) tie trunks provide a 1.544 Mbps (T1) or 2.048 Mbps (E1) digital data service between two collocated systems or between the system and a data network. The following cables can be used:

- **C6C connector cable (comcode 104307327)** — 50-foot (15.2 m) shielded cable equipped with a 50-pin male connector on one end and a 15-pin male connector on the other end. Use this cable to connect a DS1 tie trunk circuit pack to a Channel Service Unit (CSU).
- **C6D connector cable (comcode 104307376)** — 50-foot (15.2 m) shielded cable equipped with a 50-pin male connector on each end. Use this cable to connect a DS1 tie trunks in collocated cabinets.
- **C6E connector cable (comcode 104307434)** — 100-foot (30.5 m) shielded cable equipped with a 50-pin male connector on one end and a 50-pin female connector on the other end. Use this cable as an “extension” cable between the DS1 tie trunk circuit pack and other connector cables.
- **C6F connector cable (comcode 104307475)** — 50-foot (15.2 m) shielded cable equipped with a 50-pin male connector on one end and a three inch (7.62 cm) stub on the other end. Use this cable to connect the DS1 tie trunk circuit pack to channel multiplexers requiring hardwired connections. See [Table 5-1](#) for a pinout of the C6F cable

Table 5-1. Pinout of C6F Cable

Wire Color	Lead Designation	Pin Number
White/Green	LI* (High Side)	47
Green	LI	22
White/Brown	LO	48
Brown	LO* (High Side)	23
White/Slate	LBACK2	49
Slate	LBACK1	24

Collocated DS1 Tie Trunks

Two DS1 tie trunk circuit packs can be in collocated systems. A DS1 Tie Trunk circuit pack in one system can be connected to a DS1 in another system. A C6D cable can be used if the distance is less than 50 feet (15.2 m). If the distance is greater than 50 feet (15.2 m), use a C6E cable.



NOTE:

The maximum distance between cabinets is 1310 feet (399.3 m).

DS1 Tie Trunks Using T1 Channel Service Unit

The T1 Channel Service Unit (CSU) interfaces the DS1 tie trunks with the 1.544 Mbps digital facility.

1. Connect the DS1 tie trunk to a T1 CSU. See [Figure 5-6](#).



NOTE:

A 3150 CSU is shown, a 120A Integrated CSU (ICSU) may be used.

2. Contact your Lucent Technologies representative for maximum cabling distances for the 31xx series CSU or the 120A CSU.

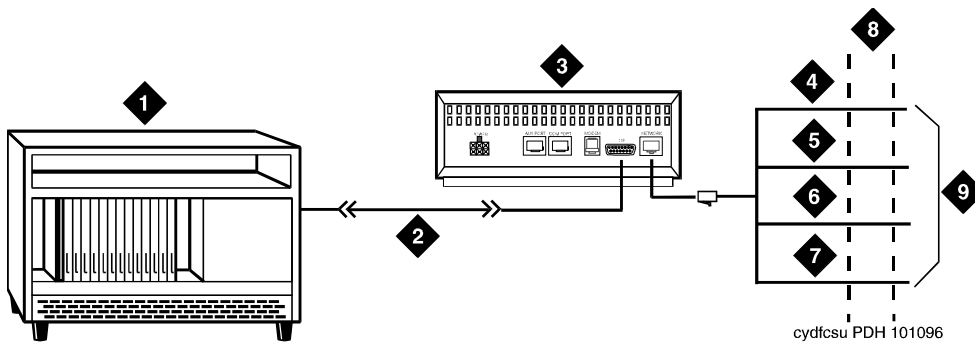


Figure Notes

- | | |
|---|---|
| 1. System Cabinet (DS1 Interface Circuit Pack) | 5. R (Ring) |
| 2. C6C Cable (For Distances Over 50 Feet (15.24 m), Use C6E Cable(s)) | 6. T1 (Tip 1) |
| 3. T1 Channel Service Unit (CSU) 3150 Shown | 7. R1 (Ring 1) |
| 4. T (Tip) | 8. 1.544 Mbps Digital Service Interface |
| | 9. To T1 Carrier |

Figure 5-6. Typical Connections to Channel Service Unit

Auxiliary Connector Outputs

The Control Carrier outputs cable pinouts are shown in [Table 5-2](#). The Control Carrier **AUX** connector outputs include the following:

- Alarm monitoring for the auxiliary cabinet
 - Seven -48 VDC power sources for emergency transfer units
 - Three -48 VDC power sources for remotely powering three attendant consoles or telephone adjuncts
 - The remote management terminal interface trunk connection location
 - A relay contact actuates a customer-supplied light, bell, or similar device. The relay can activate when a major, minor or warning condition occurs. The pinouts for an external alarm are shown in [Table 5-2](#).
1. Connect a 25-pair cable from the **AUX** connector to a connecting block on the trunk/auxiliary field.

Table 5-2. Auxiliary Lead Appearances at AUX Connector

W-BL BL-W	26 1	Major*
W-O O-W	27 2	Minor*
W-G G-W	28 3	GRD
W-BR BR-W	29 4	GRD
W-S S-W	30 5	GRD
R-BL BL-R	31 6	GRD
R-O O-R	32 7	GRD
R-G G-R	33 8	Not Connected
R-BR BR-R	34 9	Not Connected
R-S S-R	35 10	Not Connected

Continued on next page

Table 5-2. Auxiliary Lead Appearances at AUX Connector — Continued

BK-BL BL-BK	36 11	-48 GND	Emergency Transfer Relay Power
BK-O O-BK	37 12	-48 GND	
BK-G G-BK	38 13	-48 GND	
BK-BR BR-BK	39 14	-48 GND	
BK-S S-BK	40 15	-48 GND	
Y-BL BL-Y	41 16	-48 GND	
Y-O O-Y	42 17	-48 GND	
Y-G G-Y	43 18	Not Connected	
Y-BR BR-Y	44 19	GND -48	AUX Power
Y-S S-Y	45 20	GND -48	
V-BL BL-V	46 21	GND -48	
V-O O-V	47 22	Not Connected	
V-G G-V	48 23	Ext Alarm A** Ext Alarm Return	
V-BR BR-V	49 24	Not Connected	
V-S S-V	50 25	INADS Tip INADS Ring	

* External alarm with signal incoming to system.

** External alarm with signal outgoing from system.

1 Color designation is the main wire color and the color of the stripe on the wire.

2 The following wire colors apply to [Table 5-2](#):

W White
 BL Blue
 O Orange
 G Green
 BR Brown
 S Slate (Grey)
 R Red
 BK Black
 Y Yellow
 V Violet

5 Install and Wire Telephones and Other Equipment
 Three-Pair and Four-Pair Modularity

5-11

[Table 5-3](#) provides port circuit pack and telephone pin designations.

Table 5-3. Port Circuit Pack and Telephone Pin Designations

Pin on Modular Plug	4-wire; 302C1, 8400-Series, 603E, 9403, 9434	2-wire; 302C1, 8400-Series, 603E, 9403, 9410, 9434	8510T Basic Rate Interface (BRI) (with adjunct speaker phone)	Analog Station, Modem	NT1	Z3A1 & Z3A2 Asynchronous Data Units (ADU), Data Module
1	TXT					TXT
2	TXR			T		TXR
3	PXT		TXT	R		PXT
4		T	PXR	No Connection 4-pin modular jack	T	
5		R	PXT		R	
6	PXR		TXR			PXR
7	-48VDC	(-48VDC)	(-48VDC)			-48VDC
8	GRD	GRD	GRD		GRD	
Circuit Pack	TN754 4-wire digital (8 port)	TN2181 2-wire digital (16 port) TN2224 2-wire digital (24 port)	TN556 ISDN-BRI Line	TN2183 Analog line (16 port)	TN2198 2-wire Basic Rate Interface line	TN726 Data Line

PX PBX transmit T Tip (A)
 TX Terminal transmit R Ring (B)

Three-Pair and Four-Pair Modularity

[Figure 5-7](#) shows 3-pair and 4-pair modularity from the port circuit pack to the voice or data terminal. Refer to [Chapter 2, “Install Telecommunications Cabling”](#) for descriptions of 3- and 4-pair modularity and distribution.

Most terminals connect to an information outlet (modular jack) installed at the work location. Make the connections as shown in [Figure 5-7](#). [Figure 5-8](#) shows three methods of connecting adjunct power.

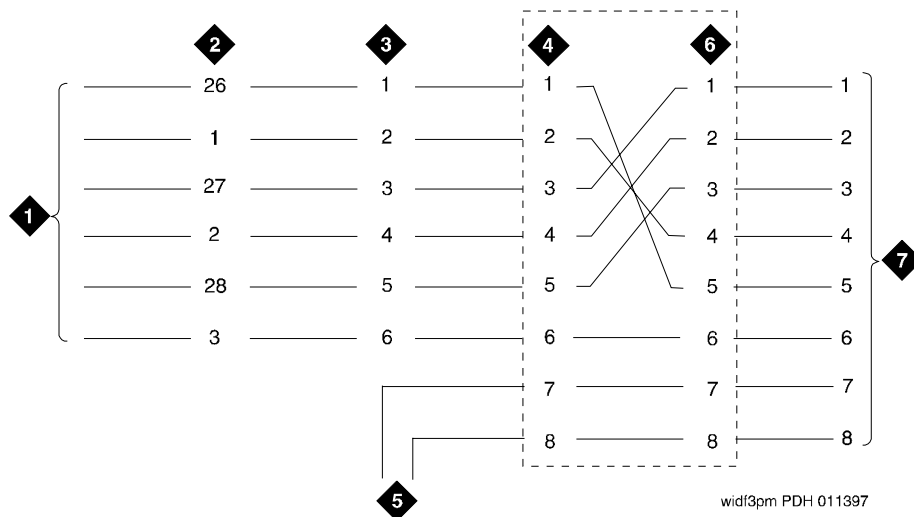


Figure Notes

- | | |
|--|--|
| 1. Port Circuit Pack | 5. Adjunct Power |
| 2. System Cabinet Connector Pins
(3-Pair Modularity) | 6. Output From Information Outlet
(4-Pair Modularity) |
| 3. Main Distribution Frame (MDF) Pins
(3-Pair Modularity) | 7. Voice or Data Terminal Pins |
| 4. Input to Information Outlet (4-Pair
Modularity) | |

Figure 5-7. 3-Pair and 4-Pair Modularity

[Table 5-4](#) lists voice and data terminals that can connect to the system.

Table 5-4. Voice and Data Terminals

Terminal	Type
Multi-button Electronic Telephone (MET) sets: 10, 20, 30 Button	Voice
Analog: 500, 2500/2554, 2500 DMGC, 2500YMGK, S203A Speakerphone	Analog voice
71XXX series: 7101A, 7102A, 7103A, 7104A	Analog voice
73XXX series: 7302H, 7303H, 7303S, 7305S, 7305H	Hybrid voice
74XXD series: 7401D, 7403D, 7404D, 7405D, 7406D, 7407D, 7410D, 7434D, 7444	Digital voice
81XX series: 8102, 8110 91XX series: 9101, 9103, 9110	Analog voice
64XX series 6402, 6402D, 6408/D+/D+, 6416D+, 6424D+, XM24 84XX series: 8403B, 8405B/D/B+/D+, 8410B/D, 8411B/D, 8412, 8434, 8435 94XX series: 9403, 9410, 9434	Digital voice
Basic Rate Interface (BRI) (75XX series): 7505-VOM/T, 7506-VOM/T, 7507-VOM/T 85XX series: 8503, 8510, 8520	BRI voice
Workstation series Business Communications Terminals (BCTs) and Business Communications Systems (BCS): 510D BCT, 513 BCT, 515 BCT, 615 BCT, 715 BCT, 715 BCS PC/PBX platform (digital): PC/ISDN platform (BRI)	Data
Consoles: 301A Attendant Console, 302A1 Enhanced Generic 1 Console 602A1 ACD Console (CallMaster® digital communications terminal)	Data and voice
ZE01A Expansion Module for 8434Dx	Voice and Features

Continued on next page

Table 5-4. Voice and Data Terminals — Continued

Cordless Hybrid: MDW 9000 (TransTalk 9000) MDC 9000	Voice
DCP Data interface: Constellation Automatic Call Distribution (ACD) data terminal	Data and voice
PassageWay interface: Consoles: 302B1, 302C1 Attendant Console 603A/D Automatic Call Distribution (ACD) Console (CallMaster digital console) 603E Automatic Call Distribution (ACD) Console (CallMaster digital console)	Data and voice

Administration Terminals

[Table 5-5](#) lists the administration terminals that can connect to the system.

Table 5-5. Administration Terminals

Administration Terminal	Application
510D	Remote administration
610D, 513, 610, 615, 715* Business Communications Terminal (BCT), 4410, 4425, and VT220	Management Terminal: administration and general purpose
515 Business Communications Terminal (BCT)	Remote administration, general purpose
615 Management Terminal	Management Terminal system administration and maintenance terminal
715 BCS and 715 BCS-2 Management Terminal	Management Terminal system administration and maintenance terminal

*The keyboards and terminals are interchangeable when an adapter cable is used.

NOTE:

The older version of 715 BCT (the 715 Business Communications System (BCS)) (406803148 and 406803155), has a 6-pin mini-DIN keyboard connector.

The new version of 715 BCT (the 715 Business Communications System (BCS)) (4073113881 and 407313899), has a 6-pin RJ-11 keyboard jack located on the side of the terminal

Adjunct Power Connections

[Figure 5-8](#) shows typical connection locations for adjunct power.

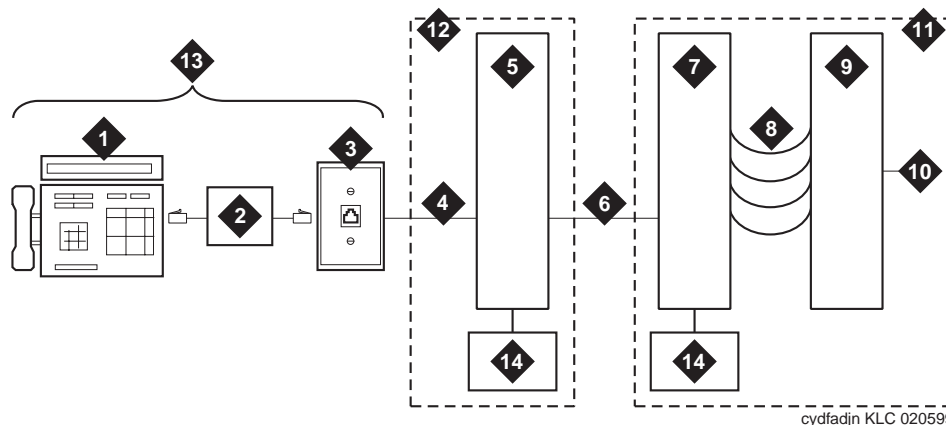


Figure Notes

- | | |
|---|---|
| 1. Typical Display Telephone | 8. 100P6A Patch Cord or Jumpers |
| 2. Individual Power Supply (Such as 1151A1 or 1151A2 shown in Figure 5-20) | 9. System Side of Main Distribution Frame (MDF) |
| 3. Information Outlet (Modular Jack) | 10. 25-Pair Cable to System Cabinet (Analog Line Circuit Pack) |
| 4. 4-Pair D-Inside Wire (DIW) Cable | 11. Equipment Room |
| 5. Satellite Site or Adapter Location | 12. Satellite Location |
| 6. 25-Pair D-Inside Wire (DIW) Cable | 13. Work Location |
| 7. Station Side of Main Distribution Frame (MDF) | 14. Bulk Power Supply (Such as 1145B shown in Figure 5-17 and Figure 5-18) |

Figure 5-8. Example Adjunct Power Connections

For this figure, the following example is used:

- a. If 25 telephones are connected to the system and all 25 telephones need adjunct power, install a bulk power supply in the equipment room.
- b. If only ten of the telephones need adjunct power, install a bulk power supply at the satellite location.
- c. If only one telephone needs adjunct power, install the individual power supply at the work location.

Local and Phantom Power

A console's maximum distance from the system is limited. The maximum distance for a 302C1 console is as shown in [Table 5-6](#).

Table 5-6. Attendant Console Cabling Distances

Enhanced Attendant Console (302C1)	24 AWG Wire (0.5106 mm ²)		26 AWG Wire (0.4049 mm ²)	
	Feet	Meters	Feet	Meters
With Selector Console				
Phantom powered	800	244	500	152
Locally powered	5000	1524	3400	1037
Without Selector Console				
Phantom powered	1400	427	900	274
Locally powered	5000	1524	3400	1037

Auxiliary Power

The nonessential functions of an attendant console and its optional 26A1 or 24A1 selector console derive their power from an auxiliary power source. Of the maximum of 27 attendant consoles, 3 of the consoles can derive auxiliary power from the system and through the auxiliary cable located in the trunk/auxiliary field. Provide auxiliary power for a primary attendant console through this cable so the console remains fully operational during short power outages.

NOTE:

For a console to realize the longest possible nominal battery holdover of 10 minutes, the console's TN754B or TN413 Digital Line circuit pack should reside in an EPN's duplicated control cabinet.

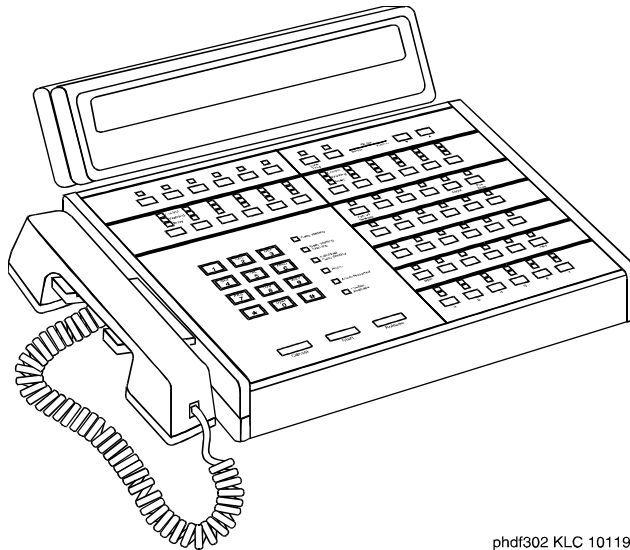
An attendant console can also derive auxiliary power from:

- Individual 1151A1 or 1151A2 power supply
- 258A-type adapters
- Bulk power supplies such as the 1145B

A console's maximum distance from its auxiliary power source is:

- 800 feet (244 m) for a 302A1
- 350 feet (106.8 m) for a 301B1 and 302C1

Attendant Console



phdf302 KLC 101196

Figure 5-9. 302C1 Console

1. Install the Attendant Console and connect the modular cord to the information outlet.
2. Install labels per the Attendant Console form and the Display Module form assignments.
3. Install a Digital Line circuit pack in the assigned carrier slot (if an additional circuit pack is required).
4. Administer the forms listed in "Attendant Console" in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Hard-Wire Bridging

Analog type hard-wire bridging is not allowed for four-wire (only) DCP endpoints. Hard-wire bridging provides no way of combining the digital output of two bridged DCP sets. Also, a bridged endpoint causes degradation of the DCP signal.



CAUTION:

Bridging or paralleling these endpoints can cause electrical damage to the consoles or cause the circuit pack to remove power from the consoles.

Dual Wiring of Two-Wire and Four-Wire Endpoints

Do not simultaneously wire a two-wire and four-wire endpoint to the same equipment location in an MDF. The DEFINITY System uses separate circuit packs to interface two- and four-wire endpoints.

Install 26B1 Selector Console

1. Connect the supplied 3-foot (0.9 m) D8AC cable to the modular jack on the bottom of the 26B1 Selector Console.
2. Route the cable to the attendant console and connect to the DXS/BLF jack.
3. Attach labels according to the Attendant Console form.
4. Administer the console using *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Connect External Alarm Indicators

Alarm Input

Alarms can be generated on adjunct equipment, sent to the DEFINITY System, and recorded and reported as “external alarms.” A typical major alarm *input* is from an Uninterruptible Power Supply (UPS).

1. Connect 1 major and 1 minor alarm *input* pair to the trunk/auxiliary field from the AUX connector. See [Table 5-7](#).

Table 5-7. Alarm Inputs at AUX Connector

Color	AUX Connector
White-Blue	AP1 (Pin 26) Major Alarm Input
Blue-White	Ground (Pin 1)
White-Orange	AP2 (Pin 27) Minor Alarm Input
Orange-White	Ground (Pin 2)

Alarm Output

The system provides a relay contact that can operate a customer-provided alarm, such as a light or bell. The circuitry and power source are customer-provided. The alarm device must not exceed a rating of more than 30 VAC RMS or 60 VDC at 0.75 A.

1. Connect an external alarm *output* through pins 48 and 23 of the AUX connector. See [Table 5-8](#).
2. Note which device connects to which alarm and give this information to your Lucent Technologies representative for troubleshooting purposes.

Table 5-8. Alarm Output at AUX Connector

Color	AUX Connector
Violet-Green	EXTALMA (Pin 48) Alarm Output
Green-Violet	EXTALMB (Pin 23) (Ground) Alarm Output

Emergency Transfer and Auxiliary Power

Connect emergency transfer power and auxiliary power as shown in [Table 5-9](#). Auxiliary power includes power to an attendant console or adjunct device.

Table 5-9. Emergency Transfer and Auxiliary Power

Color	AUX Connector
Black-Green	XFER48 (Emergency Transfer) (Pin 36)
Green-Black	Ground (Pin 11)
Black-Slate	ACC48A (Adjunct -48 VDC) (Pin 19)
Slate-Black	Ground (Pin 44)

Install Remote Network Interface

The Remote Network Interface (formerly Initialization and Administration System (INADS)) provides a 9600 bps modem connection for the remote management terminal. The network interface trunk should appear on the 25 pair of a RJ21X network interface jack. The trunk is a 2-way, rotary dial, loop start trunk that connects to a TN731 Maintenance circuit pack or the TN790B Processor circuit pack through the Remote Network Interface terminals at the trunk/auxiliary field. [Figure 5-10](#) shows a typical Remote Network Interface trunk installation.

Remote Network Interface Installation

1. Determine the network interface trunk appearance at the green trunk/auxiliary field.
2. Label the terminals for the trunk appearance.
3. Install jumpers between the trunk appearance and Remote Network Interface terminals.

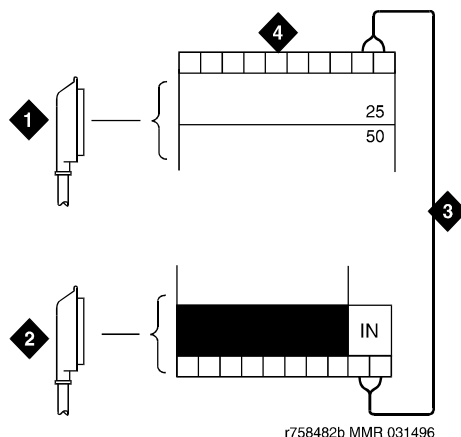


Figure Notes

- | | |
|---|--|
| 1. To Network Interface Facility | 3. One Pair of Wires |
| 2. To Control Carrier Auxiliary Connector | 4. Twenty-fifth Pair of RJ21X Network Interface Jack |

Figure 5-10. Connections at Trunk/Auxiliary Field

4. Enter **change system-parameters maintenance** and press Enter. The product identification and the INADS OSS telephone number must be obtained from the NTSO or the TSC.

Enter the ten-digit product identification. Enter the INADS OSS telephone number in the *First OSS Telephone Number* field.

5 Install and Wire Telephones and Other Equipment
Install Off-Premises Station Wiring

5-21

5. Enter **first-only** in the *Alarm Origination to OSS Numbers* field and press Enter to enable Alarm Origination (to the first OSS).

Also enable *Cleared Alarm Notification* and *Restart Notification*, if needed.

 **NOTE:**

Release 8 supports up to two OSS telephone numbers. Some services contracts may require the second OSS telephone numbers and a different option in the *Alarm Origination to OSS Numbers* field to be administered.

Install Off-Premises Station Wiring

The cabling outside the building for off-premises stations is provided by the local telephone company. The off-premises stations can appear on any of the RJ21X network interfaces provided for the Central Office (CO) trunks.

 **CAUTION:**

Only an FCC-approved (or equivalent) analog type telephone (such as a 2500-type), can be used as an off-premises station. The TN746B and TN2183 Analog Line circuit packs can be connected to off-premises stations.

1. Install an A25D (male to male) cable between the RJ21X network interface and a sneak fuse panel.
2. At the Main Distribution Frame (MDF), connect jumper wires between one row/connecting block in the green field and up to three rows/connecting blocks in the purple field to concentrate the analog line pairs.
3. Connect an A25D cable between the sneak fuse panel and the terminal block connector associated with the green row in Step 2.
4. Install a green label on the terminal block to identify the remote location.
5. Administer per *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

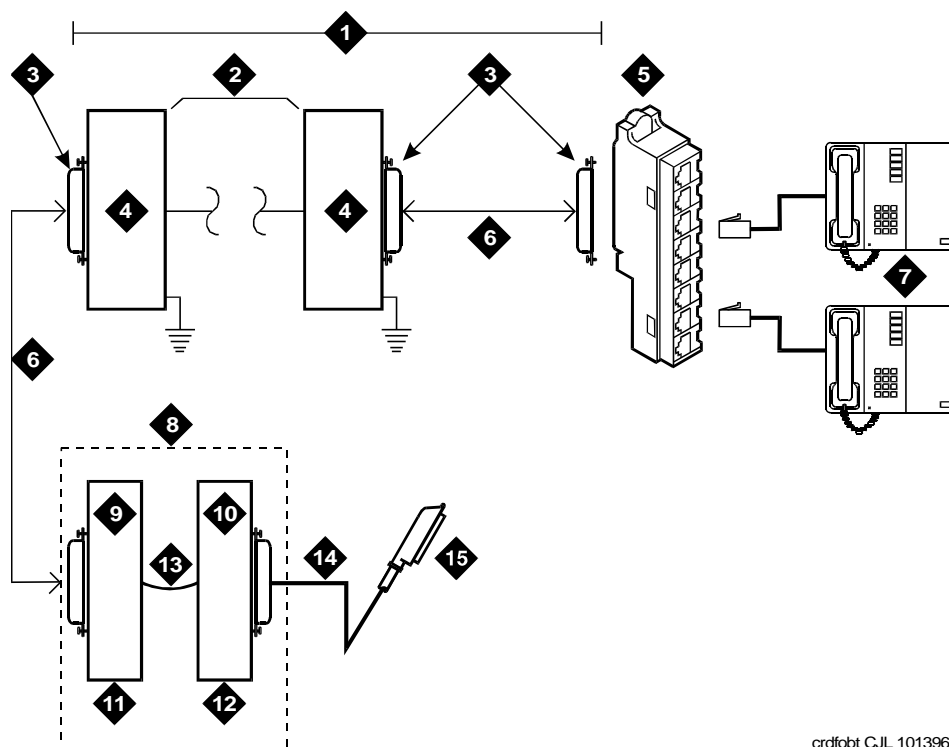
Install Off-Premises or Out-of-Building Stations

Out-of-building campus stations are those telephones/voice terminals not physically located in the same building as the equipment room but are located on the same property.

Analog Off-Premises Stations

[Figure 5-11](#) shows the connections for one to eight off-premises analog telephones. Only analog telephones connected to TN742, TN746B, TN2183, or TN769 Analog Line circuit packs can be installed out-of-building.

The maximum distance from the system cabinet to the out-of-building voice terminal is 6000 feet (1828.8 meters) using 24 AWG (#5) (0.5 mm²) wire.



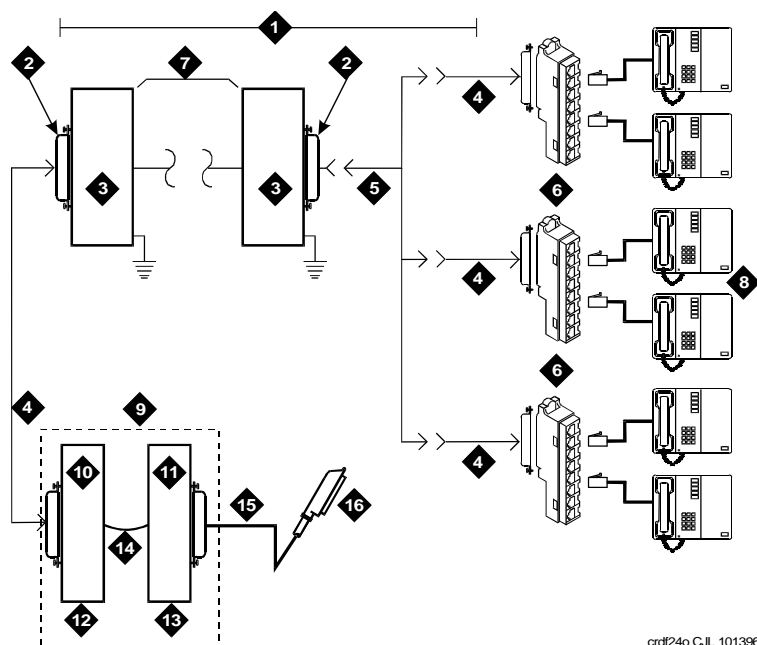
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Figure Notes

- | | |
|--|--|
| 1. Locally Engineered Cables and Equipment | 8. Part of Main Distribution Frame (MDF) |
| 2. Out-of-Building Wiring | 9. Station Side |
| 3. 25-Pair Connector | 10. System Side |
| 4. Multi-Pair Protector Units (Primary Protectors with Heat Coils or Equivalent with Sneak Current Protection) | 11. White Field |
| 5. 356A Adapter | 12. Purple Field |
| 6. B25A Cable (Male to Female) | 13. Cross-Connect Jumpers |
| 7. Out-Of-Building Analog Telephones | 14. Tip and Ring Wires |
| | 15. To Analog Line Circuit Pack |

Figure 5-11. Connections for 1 to 8 Out-of-Building Analog Telephones

Figure 5-12 shows the connections for up to 24 off-premises analog telephones. Concentrations of analog line pairs are used at both buildings to minimize the off-premises wiring required. At the MDF, jumpers must be connected between one row/connecting block in the white field and up to three rows/connecting blocks in the purple field. At the station location, a WP-90929, List 1 Concentrator Cable is used. There are eight station appearances on each of the three fingers of the concentrator cable.



crdf24o C.J.L. 101396

Figure Notes:

- | | |
|--|--|
| 1. Locally Engineered Cables and Equipment | 8. Out-Of-Building Analog Telephones |
| 2. 25-Pair Connector | 9. Part of Main Distribution Frame (MDF) |
| 3. Multi-Pair Protector Units (Primary Protectors with Heat Coils or Equivalent with Sneak Current Protection) | 10. Station Side |
| 4. B25A Cable (Male to Female) | 11. System Side |
| 5. Concentrator Cable (WP90929 List 1) | 12. White Field |
| 6. 356A Adapter | 13. Purple Field |
| 7. Out-of-Building Wiring | 14. Cross-Connect Jumpers |
| | 15. Tip and Ring Wires |
| | 16. To Analog Line Circuit Pack |

Figure 5-12. Connections to 24 Out-of-Building Telephones

Carbon block, or equivalent protection is required at both building entrances. Also sneak current protection is required. Protection can be provided by a 4-type protector or a 3-type protector plus a separate sneak current protector. The 4-type protector is equipped with a heat coil.

The 4-type protector is the preferred device. For installations not using primary protection, 4-type protectors should always be used. When the 3-type protector is already installed, a separate sneak current protector is required. The multi-pair protector units and the off-premises cabling must be locally engineered. Connectorized multi-pair protector units (female 25-pair connector) are recommended. The protectors can be ordered from the *Premises Distribution Systems Equipment and Supplies Catalog*. [Table 5-10](#) shows the recommended protectors.

Table 5-10. Analog Line Circuit Protectors

Protectors		
Primary ¹	Primary (with heat coil)	Sneak Current Protectors ¹
3B1A (carbon)	4B1C (carbon)	220029 Fuse
3B1E-W (wide gap gas tube)	4B1E-W (wide gap gas tube)	SCP-1
3C1S (solid state)	4C1S (solid state)	

1. The 3-type protectors should only be used if they are already part of the existing protection system. A sneak current protector is always required when a 3-type primary protector is used.

The maximum range of out-of-building analog telephones (500-, 2500-, or 7100-types) connected to an analog line circuit pack should be such that the maximum loop resistance does not exceed 1300 ohms.

The following voice terminals cannot be installed in an exposed environment:

- 7300-type voice terminals connected to TN762 Hybrid Line circuit packs
- Multi-button Electronic Telephone (MET) sets connected to TN735 Multi-button Electronic Telephone (MET) Line circuit packs
- Analog telephones connected to TN746 Analog Line circuit packs

The following table details the protector ordering information.

Protector Ordering Information

Description	Comcode
3B1A (Carbon Block)	102381779
3B1E-W (Wide Gap Gas Tube)	104410147
3C1S (Solid State)	105514756
4B1C (Carbon Block with Heat Coil)	102904893
4B1E-W (Wide Gap Gas Tube w/Heat Coil)	104401856
4C1S (Solid State with Heat Coil)	104386545
SCP-110 Sneak Current Protector	406948976
220029 Fuse (sneak current protector)	407216316

Digital Out-of-Building Voice Terminals

Protection is required at both building entrances for digital out-of-building voice terminals. There are two different types of protectors that can be used to protect digital voice terminals and digital line circuit packs. The two protectors to use are the 4C3S-75 Enhanced protector and the ITW Linx Enhanced Protector. These units provide primary and sneak current protection. The 4C3S-75 is equipped with a heat coil for sneak current protection. The ITW Linx is equipped with replaceable fuses for sneak current protection.

The 4C3S-75 may only be used with Vintage 14 or newer TN754 circuit packs. The 4C3S-75 can be used on all vintages of the TN754B circuit packs. The ITW Linx may be used on all vintages of the TN754 and TN754B circuit packs. [Table 5-11](#) lists the approved protectors.



NOTE:

The TN2181 16 Port Two-Wire Digital Line circuit pack may not be approved for some out-of-building uses. Contact your Lucent Technologies representative for more information.

Table 5-11. Digital Voice Circuit Protectors

Circuit Pack	Enhanced Primary Protector (With Sneak Current Protection)
TN754 V13 or earlier	ITW Linx Only
TN754 V14 or later	4C3S-75 or ITW Linx
TN754B all vintages	4C3S-75 or ITW Linx

When possible, all new and reused wiring installations should use blocks that accept the standard 5-pin plug-in 4C3S-75 protector. However, there are reused wiring installations where this may not be cost effective. For these installations, the ITW Linx protector may be installed. An example of this is where screw-type carbon block protectors (or other non plug-compatible types) are in place and it is too costly to re-terminate the outside plant cable on a 5-pin mounting block for only a few out-of-building terminals.

The ITW Linx Enhanced Protector may be installed in series with existing primary protection. Note the 4C3S-75 protector cannot be installed in series with other types of primary protection. It must be installed as the only protection on the line entering the building. For the 4C3S-75 protector there are a variety of 25-, 50-, and 100-pair protector panels equipped with 110-type connecting blocks and/or RJ21X connectors. The ITW Linx Enhanced Protector mounts directly on connecting blocks and requires a separate ground bar.

The maximum range for out-of-building digital voice terminals is 3400 feet when using 24 AWG (#5) (0.5 mm²) wire and 2200 feet (670 m) when using 26 AWG (#4) (0.4 mm²) wire. The range can be extended to 5000 feet (1524 m) using 24 AWG (#5) (0.5 mm²) wire or 4000 feet (1220 m) using 26 AWG (#4) (0.4 mm²) wire with the use of a data link protector. The protector is an isolating transformer used to remove phantom power on the system side and re-introduce it on the terminal side.

When a protector is used, the voice terminal must be locally powered by an external power supply or through the AC power cord provided with some of the 7400-type voice terminals. The protector is installed on the equipment side of the protection in both buildings.

Protector and Data Link Protector Ordering Information

Description	Comcode
4C3S-75 (Solid State with Heat Coil)	105581086
ITW LINX (Gas Tube, Avalanche Suppress)	406144907
ITW Linx Ground Bar (used with above)	901007120
ITW Linx Replacement Fuse	406304816
Data Link Protector (one circuit)	103972758
Data Link Protector (eight circuits)	103972733

Refer to [Figure 5-8](#) and [Figure 5-10](#).

Install Emergency Transfer Units and Associated Telephones

An 808A Emergency Transfer Panel mounted next to the trunk/auxiliary field provides emergency transfer capability. You can use 500- and 2500-series analog telephones for either emergency transfer or as normal extensions. For emergency transfer, connect the phones directly to the 808A; for normal extensions, wire them through the 808A. Emergency transfer capability may be provided on analog Central Office (CO) and Wide Area Telecommunications Service (WATS) trunks.

The 808A Emergency Transfer Panel provides emergency trunk bypass or power-fail transfer for up to five incoming Central Office (CO) trunk loops to five selected station sets. The 808A equipment's Ringer Equivalency Number (REN) is 1.0A.

At the Main Distribution Frame (MDF), the unit is controlled by a connection to a yellow terminal row/connecting block in the trunk/auxiliary field. The unit is controlled by -48 VDC from the EM TRANS RELAY PWR terminals. There are seven EM TRANS RELAY PWR terminal pairs that allow powering of up to seven transfer units.

Should power be restored to the relays while a call connected through the 808A is in progress, the 808A maintains the connection until the user goes on-hook. Each 808A can handle up to five Central Office (CO) trunks.

Install the 808A Emergency Transfer Panel

Figure 5-13 shows a typical 808A Emergency Transfer Panel. The 808A connects to the MDF with B25A or A25B cable.

The following procedures are provided as a typical installation example.

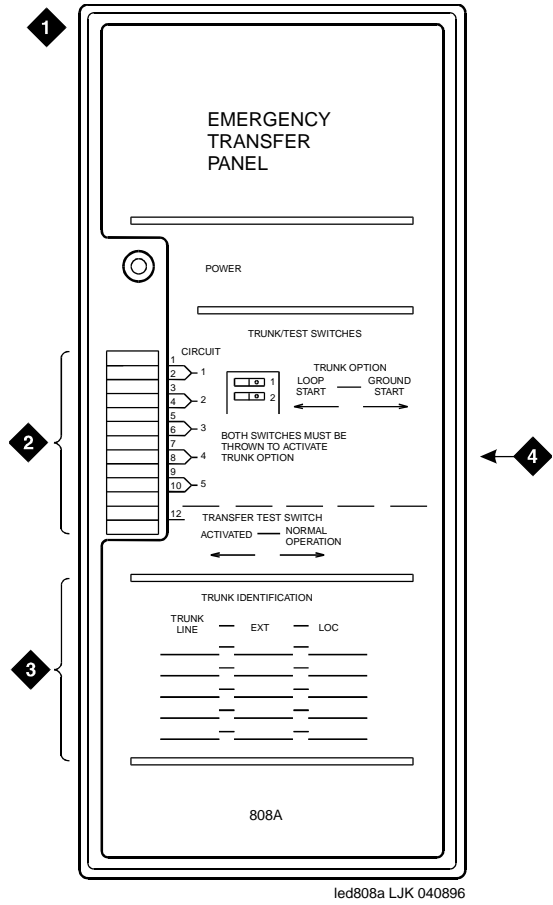
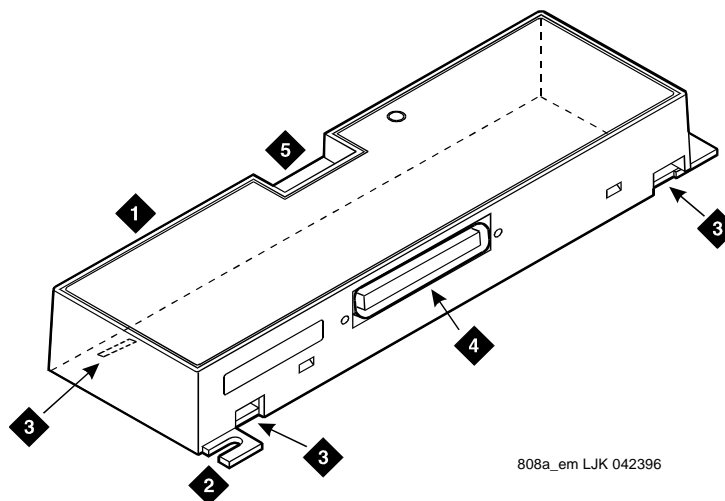


Figure Notes

- 1. 808A Emergency Transfer Panel
- 2. Circuit Start Selection Switches
- 3. Trunk Identification Label
- 4. 25-Pair Male Connector

Figure 5-13. 808A Emergency Transfer Panel

The panel can be installed on any mounting frame in either a vertical or horizontal position. The housing has ears for screw-mounting and cutouts for snap-mounting the unit in an 89-type mounting bracket. See [Figure 5-14](#).



808a_em LJK 042396

Figure Notes

- | | |
|----------------------------------|---------------------------|
| 1. 808A Emergency Transfer Panel | 4. 25-Pair Male Connector |
| 2. Ear for Screw Mount | 5. Circuit Start Switches |
| 3. Cut-Out for Snap Mount | |

Figure 5-14. 808A Emergency Transfer Panel Mounting

NOTE:

The 808A must be installed in a location that can be accessed only by authorized personnel. The location must meet standard environmental considerations such as temperature, humidity, and so forth.

1. Verify dial tone is present at each trunk circuit.
2. Locate the circuit start selection switches (see [Figure 5-13](#)). These are the first 10 two-position switches on the left side of the Emergency Transfer Panel. They are used to set each of the five incoming trunk lines to either loop start or ground start. Two switches are used for each circuit; switches 1 and 2 are used for circuit 1, switches 3 and 4 are used for circuit 2, and so forth. See [Table 5-12](#). For loop start, set the switches to the left. For ground start, set the switches to the right.

Table 5-12. Trunk/Test Switches

Switch Number	Circuit Number
1	1
2	1
3	2
4	2
5	3
6	3
7	4
8	4
9	5
10	5
11	Not Used
12	Test Switch

3. Connect a 25-pair cable between the male RJ21 25-pair connector on the Emergency Transfer Panel and the yellow field of the Main Distribution Frame (MDF). [Table 5-13](#) shows the pinouts.
4. Make cross-connections for each emergency trunk/emergency station pair. See [Figure 5-15](#) and [Table 5-16](#).

Table 5-13. Pin Assignments for 25-Pair Connector

26	W-BL	TTC1	Tip-PBX Trunk Circuit 1
1	BL-W	RTC1	Ring-PBX Trunk Circuit 1
27	W-O	TTK1	Tip-CO Trunk Circuit 1
2	O-W	RTK1	Ring-CO Trunk Circuit 1
28	W-G	TLC1	Tip-PBX Line Port 1
3	G-W	RLC1	Ring-PBX Line Port 1
29	W-BR	TST1	Tip-Emergency Terminal 1
4	BR-W	RST1	Ring-Emergency Terminal 1
30	W-S	TTC2	Tip-PBX Trunk Circuit 2
5	S-W	RTC2	Ring-PBX Trunk Circuit 2
31	R-BL	TTK2	Tip-CO Trunk Circuit 2
6	BL-R	RTK2	Ring-CO Trunk Circuit 2
32	R-O	TLC2	Tip-PBX Line Port 2
7	O-R	RLC2	Ring-PBX Line Port 2
33	R-G	TST2	Tip-Emergency Terminal 2
8	G-R	RST2	Ring-Emergency Terminal 2
34	R-BR	TTC3	Tip-PBX Trunk Circuit 3
9	BR-R	RTC3	Ring-PBX Trunk Circuit 3
35	R-S	TTK3	Tip-CO Trunk Circuit 3
10	S-R	RTK3	Ring-CO Line Port 3
36	BK-BL	TLC3	Tip-PBX Line Port 3
11	BL-BK	RLC3	Ring-PBX Line Port 3
37	BK-O	TST3	Tip-Emergency Terminal 3
12	O-BK	RST3	Ring-Emergency Terminal 3
38	BK-G	TTC4	Tip-PBX Trunk Circuit 4
13	G-BK	RTC4	Ring-PBX Trunk Circuit 4
39	BK-BR	TTK4	Tip-CO Trunk Circuit 4
14	BR-BK	RTK4	Ring-CO Trunk Circuit 4
40	BK-S	TLC4	Tip-PBX Line Port 4
15	S-BK	RLC4	Ring-PBX Line Port 4
41	Y-BL	TST4	Tip-Emergency Terminal 4
16	BL-Y	RST4	Ring-Emergency Terminal 4
42	Y-O	TTC5	Tip-PBX Trunk Circuit 5
17	O-Y	RTC5	Ring-PBX Trunk Circuit 5
43	Y-G	TTK5	Tip-CO Trunk Circuit 5

Continued on next page

Table 5-13. Pin Assignments for 25-Pair Connector — Continued

18	G-Y	RTK5	Ring-CO Trunk Circuit 5
44	Y-BR	TLC5	Tip-PBX Line Port 5
19	BR-Y	RLC5	Ring-PBX Line Port 5
45	Y-S	TST5	Tip-Emergency Terminal 5
20	S-Y	RST5	Ring-Emergency Terminal 5
46	V-BL	COM1	Common 1 Relay Contact
21	BL-V	NO1	Normally Open 1 Contact
47	V-O	NC2	Normally Closed 2 Contact
22	O-V	NC1	Normally Closed 1 Contact
48	V-G	COM2	Common 2 Relay Contact
23	G-V	NO2	Normally Open 2 Contact
49	V-BR		
24	BR-V		
50	V-S	GRD	Ground from Aux Cable
25	S-V	-48PX	-48V from AUX Cable

5. On the trunk identification label at the bottom of the panel, record the trunk line, extension, and location for each circuit.
6. To each voice terminal designated as an emergency terminal, attach a label identifying it as such. The labels are provided with the unit.
7. Check the system for normal operation as follows:
 - Place the test switch (switch 12) in NORMAL OPERATION.
 - Ensure the power supply is providing -48 VDC at 80 mA maximum. The power LED should be ON.
 - Check wiring connections.
 - Verify there is dial tone on all emergency transfer sets.

If all of the above conditions are not met, remove the panel from service and replace it with a new panel.
8. Check the system for transfer operation as follows:
 - Place the test switch (switch 12) in the ACTIVATED position.
 - The power LED should be OFF.
 - Verify there is dial tone on all emergency transfer sets.

If all of the above conditions are not met, remove the panel from service and replace it with a new panel.

The 808A is connected to the Main Distribution Frame (MDF) by means of a B25A cable. Figure 5-15 shows the connections at the trunk/auxiliary field for a telephone used only for emergency transfer.

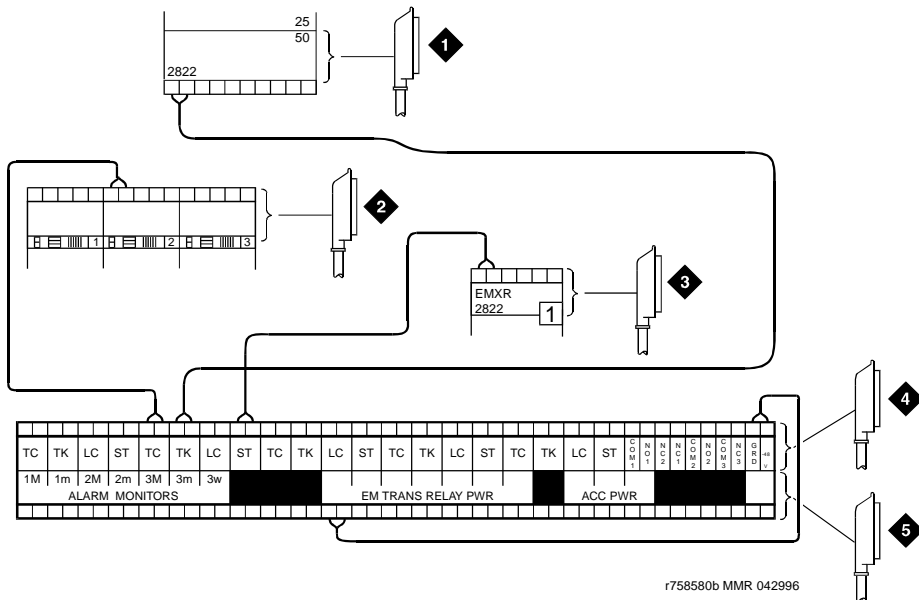


Figure Notes

- 1. To Network Interface Circuitry
- 2. To TN747 (or Equivalent) Central Office Trunk Circuit Pack
- 3. To Blue or White Station Distribution Field
- 4. To Power Transfer Unit
- 5. To Control Carrier Auxiliary Connector

Figure 5-15. Connections for Telephone Used for Emergency Transfer

Figure 5-16 shows the connections at the trunk/auxiliary field for a telephone used for emergency transfer as well as a normal extension.

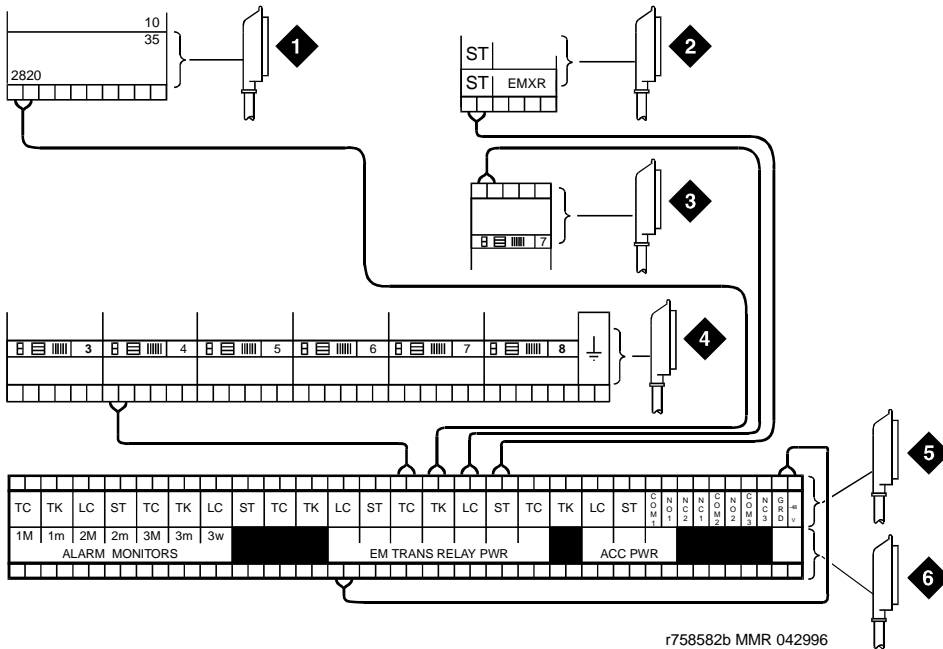


Figure Notes

- | | |
|---|---|
| 1. To Network Interface Facility | 4. To TN747 (or Equivalent) Central Office Trunk Circuit Pack |
| 2. To Blue or White Station Distribution Field | 5. To Power Transfer Unit |
| 3. To TN2183 or Equivalent Analog Line Circuit Pack | 6. To Control Carrier AUX Connector |

Figure 5-16. Connections for Telephone Used for Emergency Transfer and as Normal Extension

Install Telephone for Power Transfer Unit

Trunk/Auxiliary Field: Telephone Used Only for Emergency Transfer

1. Connect a pair of wires between the **-48V** and **GRD** terminals on the yellow emergency transfer row/connecting block and the **EM TRANS RELAY PWR** terminal. See [Figure 5-15](#).
2. Connect Central Office (CO) trunk leads from the purple field to **TC** terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to **TK** terminals on the yellow emergency transfer row/connecting block for each trunk.
4. Connect **ST** leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the assigned terminal in the blue or white station distribution field. The **ST** terminal leads should be terminated on the following pairs: 1, 4, 7, 10, 13, 16, 19, or 22 (the first pair of any 3-pair group).

Trunk/Auxiliary Field: Telephone Used for Emergency Transfer and as Normal Extension

1. Connect a pair of wires between the **-48V** and **GRD** terminals on the yellow emergency transfer row/connecting block to the **EM TRANS RELAY PWR** terminal. See [Figure 5-16](#).
2. Connect CO trunk leads from the purple field to **TC** terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to **TK** terminals on the yellow emergency transfer row/connecting block for each trunk.
4. Connect telephone leads from the purple analog line circuit pack row/connecting block to the **LC** terminals on the yellow emergency transfer row/connecting block for each telephone.
5. Connect **ST** leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the assigned terminal in the blue or white station distribution field.

Telephone Installation

1. Connect telephone to the information outlet.
2. Install patch cords/jumper wires between the system side and the station side of the station distribution field on the MDF.

Install External Ringing

Connections for external ringing are at an information outlet. The system side of the Main Distribution Frame (MDF) is connected to a TN2183 (or equivalent) Analog Line circuit pack. The circuitry and power source for the device are customer-provided.

NOTE:

A maximum of 3 devices can connect to 1 analog line circuit pack port.

1. Wire the ringing device to the information outlet as shown in [Figure 5-7](#) and [Figure 5-8](#).
2. Administer per *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Install Queue Warning Indicator

The connections for the queue warning indicator are the same as external ringing. An AC indicator (lamp) such as a 21C49 can be used in a Uniform Call Distribution/Direct Departmental Calling (UCD/DDC) queue.

The lamp is connected to an information outlet. The system side of the MDF is connected to an analog line circuit pack located in a port carrier.

1. Wire the queue warning indicator to the information outlet as shown in [Figure 5-7](#) and [Figure 5-8](#).
2. Administer per *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

Install Adjuncts and Peripherals

Refer to *DEFINITY Enterprise Communications Server Installation for Adjuncts and Peripherals* to install the necessary equipment.

Install the 1145B Power Supply

The 1145B closet power arrangement provides an uninterruptible -48 VDC power source with battery and 1146B distribution unit for ISDN/DCP, terminal equipment, adjuncts, and other customer-supplied equipment. During AC power interruptions, batteries automatically provide power to the load.

A manual switch on the distribution unit allows the user to redirect reserve power to outputs 1 through 32 so all outputs are provided battery reserve power, or to outputs 1 through 8 to provide high power above 6.25 watts.

The 1145B/1146B is a -48V power supply with 275 watts total output. Each output circuit is current limited by a Polymer Positive Temperature Coefficient Resistance Device (PTC) that limits the maximum output to 12 watts. Each 1146B output has an LED to indicate the status of the PTC. If the LED is on, the PTC has a short on that power pair.

The average power per output cannot exceed 8.6 watts ($275/32 = 8.6$). The 1145B is designed to power one ISDN terminal or DCP adjunct per output. The maximum number of terminals or adjuncts is 32 at less than or equal to 6.25 watts each. The 1145B is required for installations outside the United States.

Auxiliary power (local or bulk) is always required for the following:

- Attendant Console 302C1
- Any 8520 terminal
- Any 7500- or 8500-series terminal with an asynchronous data module
- Any 7500-series terminal whether in passive bus, or point to point (one per BRI port)
- Any 8510 terminal in passive bus or with an asynchronous data module (unless the 8510 will not be used to support data or video)
- PassageWay adapter interface
- Some 8400-series terminal and adjuncts
- Some 7400-series terminal and adjuncts

[Figure 5-17](#) shows how the standard power supply and wall-mounting plates fit together. [Figure 5-18](#) shows the expanded power supply components (power distribution unit and “T” cable).

Wall-Mounting Plates

The top plate is used for mounting the back-up battery. The bottom plate is used to mount the power supply and distribution units. The plates can be rack-mounted using standard rack-mounting brackets.

1. Locate one plate directly below the other one such that the AC power cord (6.5 feet or 2 meters) reaches the electrical outlet from a power supply mounted on the bottom plate. Both plates should be located so the raised letters are right side up.

NOTE:

A maximum of four power supplies can be powered from one dedicated 110 VAC, 20 amp (or 230 VAC, 15 amp) feeder. Use only unswitched receptacles (receptacles not connected to a wall switch).

2. Secure the wall mounting plates to a standard 3/4 inch (2 cm) thick plywood mounting board. Each mounting plate comes with four #10 x 1/2-inch wood screws.
3. The 1145B Power Supply is snap-fit onto the bottom wall mounting plate without tools.
4. An installer-provided insulated ground wire, 16 AWG (#12) (1.2 mm²) or greater, is required to connect the power supply frame ground lug to an approved ground. The frame ground screw is located next to the AC receptacle, to the left of the unit.
5. Mark the Unit Number and Connectivity information on the front label next to the LEDs.

Mount the 1146B Power Distribution Unit

1. Insert and securely tighten the two supplied #8-32 x 1/2-inch shoulder screws (they have an unthreaded section at the top) into the top holes designated for 1146B Power Distribution Unit on the bottom plate. Mount the unit on these two shoulder screws, using the key holes on the back of the unit.
2. Secure the unit by inserting the #8-32 x 1 inch screw through the bottom of the unit (just above the wire clips) into the plate and tighten.
3. Set the battery back-up switch option to the 1-32 (down) position to provide battery back-up to all outputs.
4. Connect the power distribution unit to the power supply with the power cable. Refer to the power supply's right-hand label to locate the output power connection.

Battery Mounting/Wiring

Three types of back-up batteries are used. See [Table 5-14](#) for the battery type, rating, and price element code (PEC).

Table 5-14. Back-Up Battery Rating and PECs

Battery	Rating	PEC
1148B	2.5 amp-hours	24700
1149B	5 amp-hours	24701
1147B	8 amp-hours	24703

1. Insert (do not tighten) two #10-32 x 1/2-inch shoulder screws into the top designated battery holes on the wall mounting plate.
2. Place the keyhole slots in the battery bracket on these two screws. The battery cord exits from the right of the bracket. Make sure the label on the battery is visible. Tighten the screws securely.
3. Plug the battery cord into the power supply's right rear receptacle. The rear receptacle is indicated on the right label.

Install the Expanded Power Distribution Unit

A second power distribution unit can be installed to provide power to additional devices.



CAUTION:

Total power cannot exceed 275 Watts. The maximum ISDN terminal mixture is twenty four 7500-series and twenty four 8500-series terminals.

The maximum DCP terminal mixture is twenty four 7400-series and twenty four 8400-series or sixty four 8400-series terminals.

The following items are supplied with each expanded power distribution unit kit (PEC 24706):

- a. One 1146B Power Distribution Unit (comcode 107250995)
- b. One "T" Cable (comcode 847529872)
- c. Two #8-32 x 1/2-inch Shoulder Screws
- d. One #8-32 x 1 inch Screw
- e. One Spacer Bracket (comcode 847554441)

Refer to [Figure 5-18](#) while installing the power distribution unit:

1. Set the spacer bracket onto the mounting plate and secure with the #8-32 x 1/2-inch shoulder screws. The spacer bracket is not shown in the figure but is installed behind the top power distribution unit.
2. Slide the keyhole slots in the power distribution unit over the shoulder screws.
3. Insert the #8-32 x 1 inch screw through the distribution unit, through the spacer bracket, and into the plate. The mounting hole is located just above the wire clip. Tighten the screw securely.
4. Set the battery back-up switch to the 1-32 (down) position.
5. Power-down the 1145B unit as described on the label on the side of the unit.
6. Remove the output power cable between the 1145B and the 1146B units. The cable will not be reused.
7. Connect the P1 connector end of the "T" cable to the bottom power distribution unit. Connect the P2 connector to the top distribution unit. Connect the P3 connector to the 1145B.
8. Power-up the 1145B as described on the label on the side of the unit.

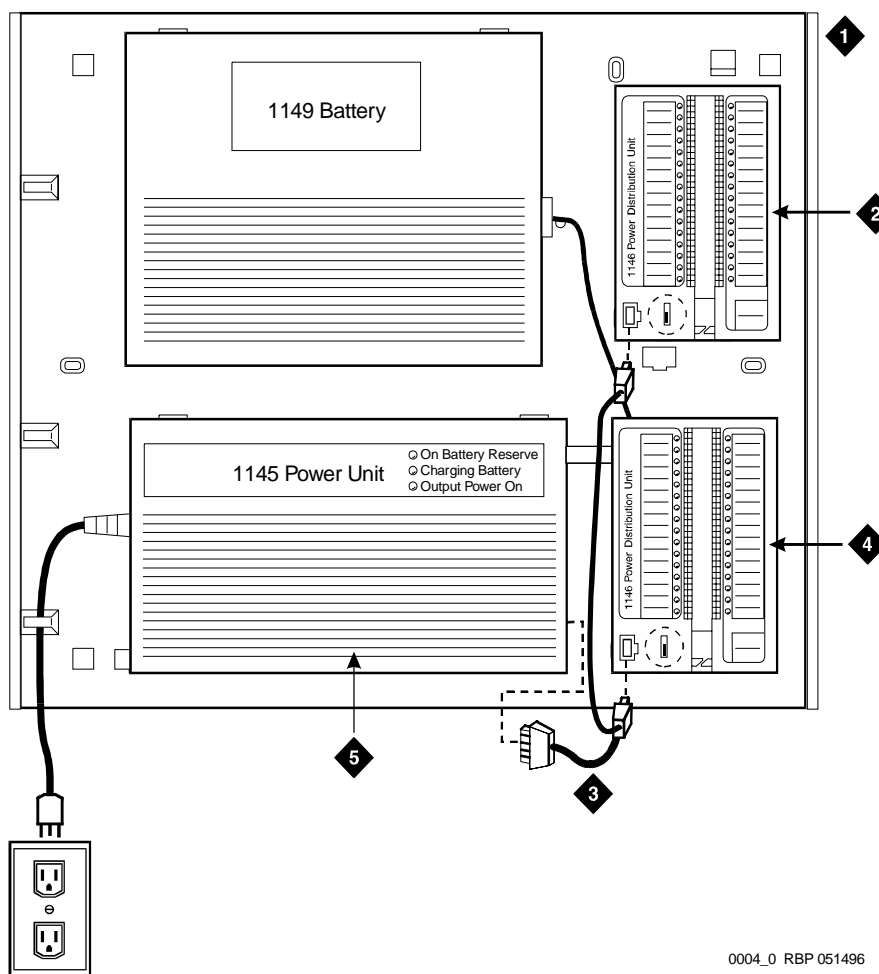


Figure Notes

- | | |
|---|--|
| 1. Wall-Mounting Plate | 3. "T" Cable (H600-347-G7) |
| 2. Second 1146B Power Distribution Unit | 4. First 1146B Power Distribution Unit |
| 5. 1145B Power Unit | |

Figure 5-18. Expanded Power Distribution Unit

Power Up and Test

The following table describes the meaning of the power supply LEDs when lit.

LED Color	Meaning
Green	Power Supply is providing power
Yellow	Battery is charging
Red	Power Supply is on battery reserve

1. Connect the AC power cord to the power supply and route the cord to an appropriate AC outlet using the clips provided on the unit.

⇒ NOTE:

A maximum of four power supplies can be powered from one dedicated 100V-120V, 50/60 Hz, 20 Amp feeder or 200V-240V, 50/60 Hz, 10 Amp feeder. Use only unswitched receptacles.

2. Plug the cord into the outlet. This powers up the power supply.
3. Check AC operation of the 1145B Power Supply by monitoring the LEDs:

PASS: Green and yellow LEDs at front of the unit should be lit together. Green means the power supply is providing power. Yellow means the battery is being charged. After the battery reaches full charge (maximum of twenty hours), the yellow LED should go out.

FAIL: If either green or yellow LED is not lit after powering up, check the connections. Test the AC outlet. If power is available and the AC power cord and connections are good, replace the power unit.
4. Disconnect the AC plug on the power supply, this activates the DC supply.
5. Check DC (battery back-up) operation of the 1145B Power Supply by monitoring the LEDs:

PASS: The red and green LEDs should be lit together. Red means the power supply is on battery back-up.

FAIL: If either green or red LED is not lit after disconnecting AC power, check the connections. If the connections are good, replace the power unit or batteries.
6. Reconnect AC power to the power supply.

Wire the 1146B Power Distribution Unit

Wire endpoints to the 1146B while power from the 1145B is on. A red LED lights if its associated circuit is connected to shorted wiring or to a shorted terminal.

1. Install cross-connect jumpers to wire from the unit (the label shows polarity) to Pins 7 and 8 of the appropriate information outlet. Route the wires through the clip provided on the unit. If a red LED is on, see *Reset LEDs on Power Distribution Unit*. See [Figure 5-19](#).
2. Mark lead destinations on the label next to each connector. Also mark the Unit Number and Connectivity information on the label.

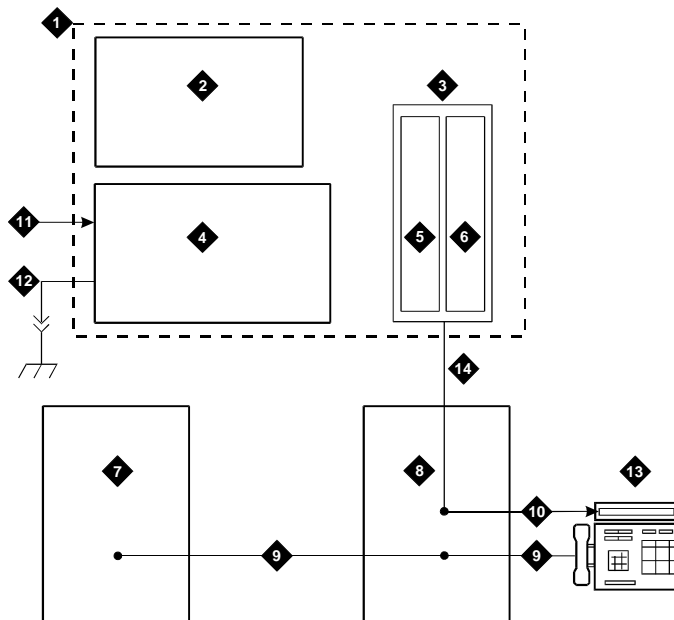


Figure Notes

- | | |
|--------------------------------------|--|
| 1. Power Supply Kit | 8. Main Distribution Frame |
| 2. 2.5, 5.0, or 8.0 Amp Hour Battery | 9. Modular Cord |
| 3. 1146B Distribution Unit | 10. Pins 7 and 8 (Display Terminal Power) |
| 4. 1145B Power Supply | 11. AC Input |
| 5. Circuits 1-16 | 12. Installer-Provided Ground Wire |
| 6. Circuits 17-32 | 13. ISDN/ Display System Protocol Terminal |
| 7. Port Circuit | 14. Circuits 1-32 |

Figure 5-19. Typical Wiring to a Terminal

Reset LEDs on Power Distribution Unit

A red LED next to any of the 32 power output connectors indicates a short circuit in the building wiring or the terminal equipment. To reset the LED:

1. Disconnect the terminal equipment from the wall jack.
2. If the LED goes off, the terminal equipment is faulty and must be replaced. If the LED is still lit, find and repair the short circuit in the building wiring.
3. Reconnect the terminal equipment to the wall jack and re-test terminal equipment operation.



WARNING:

Important Safety Instructions follow.

When operating this equipment, basic safety precautions must be followed to reduce the risk of fire, electric shock and personal injury, including the following:

- Read and understand all instructions.
- Do not attach the power supply cord to building surfaces.
- For continued back-up protection and battery reliability, replace batteries every four years.
- Follow all warnings and instructions marked on the products.
- Clean products only with a dry rag.
- Do not use this product near water.
- For mounting security, follow all installation instructions when mounting product.
- Openings on top and bottom of power unit are provided for ventilation. Do not block or cover these openings. Do not exceed recommended environmental temperatures.
- Operate these products only from the type of power source indicated on the product labels.
- The power unit is equipped with a three wire grounding type plug; a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the grounding type plug.
- Do not allow anything to rest on or spill into the products.
- To reduce risk of fire and electrical shock, do not overload power outlets.
- Never push objects of any kind through the power supply or distribution unit slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.

- To reduce risk of electric shock, do not disassemble these products. Return them for repair when needed. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the products are subsequently used.
- Power down the power unit (see label on power unit on how to do this) and refer servicing under the following conditions:
 - If liquid has been spilled into any of the products
 - If any of the products have been exposed to water
 - If any of the products do not operate normally
 - If any of the products have been dropped or damaged
 - If any of the products exhibits a change in performance
- Do not attempt to recharge batteries on your own. The batteries may leak corrosive electrolyte or explode. The 1145B power unit recharges the batteries safely.
- Remove the batteries if the power unit will not be used for a long period of time (several months or more) since during this time the battery may leak.
- Discard discharged batteries as soon as possible. Discharged batteries are more likely to leak.
- Do not store batteries in high temperature areas. Batteries stored in a cold environment should be protected from condensation during storage and warming. Batteries should be stabilized at room temperature prior to use after cold storage. Do not install batteries if the manufacturing date on the label indicates that the batteries are more than six months old.

1151A1 and 1151A2 Power Supplies

The 1151A1 and 1151A2 Power Supplies comply with the UL Standard UL 1950, second edition. Safety instructions follow the table of certifications.

Complies	UL 1950
Certified	CSA 22.2
Approved	EN6950
Approved	CE

Important Safety Instructions

Please read the following helpful tips. Retain these tips for later use.

When using this power supply, the following safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons.

- Read and understand all instructions.
- Follow all warnings and instructions marked on this power supply.
- This product can be hazardous if immersed in water. To avoid the possibility of electrical shock, do not use it near water.
- To reduce the risk of electric shock, do not disassemble this product except to replace battery.
- This product should be operated only from the type of AC power source indicated on the label. If you are not sure of the type of AC power being provided, contact a qualified service person.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
- Do not overload wall outlets and extension cords as this can result in the risk of line or electric shock.
- Disconnect the cords on this product and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product was dropped or the housing has been damaged.
 - If the product exhibits a distinct change in performance.
 - If the product does not operate normally by following the operating instructions.

The 1151A1 and 1151A2 Power Supplies

The 1151A1 and 1151A2 Power Supplies can be used to supply local power to ISDN-T 65xx, 74xx, 75xx, 84xx, and 85xx series voice terminals connected to a system and to the 302C1 Attendant Console that requires auxiliary power for its display. The unit can supply power to adjunct equipment such as S201A and CS201A speakerphones or a 500A Headset Adapter attached to any currently manufactured analog, DCP, or ISDN-T voice terminal equipped with an adjunct jack.



CAUTION:

*The power supply can be used **only** with telecommunications equipment, indoors, and in a controlled environment.*

The power supply has a single output of -48 VDC, 0.4 Amps, and can operate from either a 120 VAC 60 Hz power source (105 to 129 VAC) or a 220/230/240 VAC 50 Hz power source (198 to 264 VAC). Input voltage selection is automatic. The output capacity is 19.2 Watts.

The power supply can be placed on a flat surface such as a desk. For wall-mounting, keyhole slots are provided on the bottom of the chassis.



CAUTION:

Do not locate the unit within six inches (15.25 cm) of the floor.

Connect the 1151A1 or 1151A2 Power Supplies

The 1151A1 is a standard (no battery backup) power supply unit. The 1151A2 is a battery backup version of the 1151A1. Either power supply can support one telephone with or without an adjunct. The maximum loop range is 250 feet (76 meters). Two modular jacks are used. Power is provided on the PHONE jack, pins 7 and 8 (- and +, respectively).

The PHONE and LINE jacks are 8-pin female non-keyed 657-type jacks that can accept D4, D6, and D8 modular plug cables. [Figure 5-20](#) shows an 1151A1/2 Power Supply.

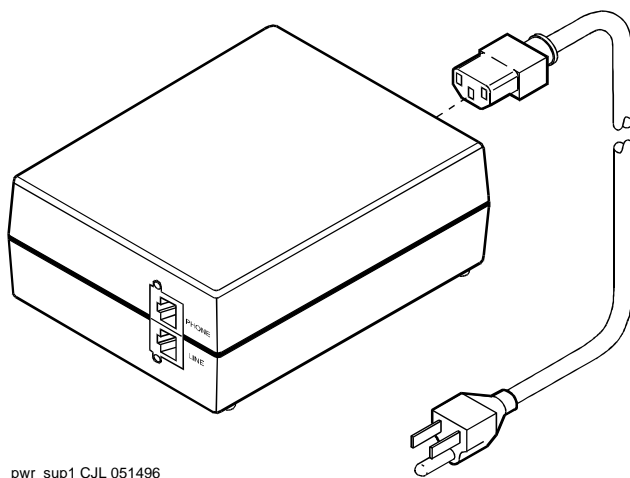


Figure 5-20. 1151A1/2 Power Supply — Front

CAMA/E911 Installation

Configuration

The CAMA/E911 feature requires the TN429C/D CO trunk circuit packs (or later suffix).

Port Networks (PNs) that include TN429C circuit packs used to interface to CAMA trunks require some CPTR resources to be either TN744D V2 or TN2182B circuit packs, since TTR/CPTR or General Purpose Tone Receiver (GPTR) resources are selected from the pool available in the PN when needed.

Hardware Setup

1. Insert the TN429C or later CO trunk circuit pack in any available port slot. Be sure the TN744D Call Classifier - Detector circuit pack is Vintage 2 or later.
2. Wire the CAMA trunk to the MDF (the trunk from the CO). Refer to the pinouts in [Table 5-42](#).

Administration Setup

1. At the prompt, type **add trunk next** and press Enter.

```
Page 1 of 11

TRUNK GROUP

Group Number: 1          Group Type: cama      CDR Reports: y
Group Name:  cama Trunk Group - E911  COR: 1      TN: 1      TAC: 701
Direction: outgoing     Outgoing Display? y  CESID I Digits Sent: 0
                          Busy Threshold: 99

TRUNK PARAMETERS
      Trunk Type: wink-start
Outgoing Dial Type: rlmf
Trunk Termination: rc
```

Screen 5-1. CAMA Trunk Group form (page 1)

2. On the Trunk Group screen (page 1), in the `Group Type:` field, enter **cama**.
3. In the `Group Name:` field, enter the desired name.
4. In the `TAC:` field, enter the desired trunk access code.
5. In the `Outgoing Display:` field, enter **y**.
6. In the `CESID I Digits Sent:` field, enter the number directed by the Central Office (CO) or the Public Safety Answering Point (PSAP).
7. Scroll to page 3 of the form.

Page 3 of 11

TRUNK GROUP

ADMINISTRABLE TIMERS

Outgoing Disconnect (msec):	400
Cama Outgoing Dial Guard (msec):	75
Outgoing Glare Guard (msec):	1000
Cama Wink Start Time (msec):	5000
Outgoing End of Dial (sec):	1
Outgoing Seizure Response (sec):	4
Disconnect Signal Error (sec):	30

Screen 5-2. Administrable Timers form (page 3)

8. On the Administrable Timers screen (page 3), you may need to adjust these fields according to your CO. Scroll to page 5.

Page 5 of 11

TRUNK GROUP

Administered Members (min/max): 1/2
Total Administered Members: 2

GROUP MEMBER ASSIGNMENTS

Port	Code	Sfx	Name
1:	01C0401	TN429	C
2:	01C0402	TN429	C
3:			
4:			
5:			
6:			
7:			
8:			
9:			
10:			
11:			
12:			
13:			

Screen 5-3. Group Member Assignments form (page 5)

9. On the Group Member Assignments screen, in the Port field, add the trunk members and press Enter when finished.
10. At the prompt, type **change feature-access-code** and press Enter.

FEATURE ACCESS CODE (FAC)

Abbreviated Dialing List1 Access Code: ____
Abbreviated Dialing List2 Access Code: ____
Abbreviated Dialing List3 Access Code: ____
Abbreviated Dial - Prgm Group List Access Code: ____
Announcement Access Code: ____
Answer Back Access Code: ____
Auto Alternate Routing (AAR) Access Code: ____
Auto Route Selection (ARS) Access Code 1: 9__ Access Code 2: ____
Automatic Callback Activation: ____ Deactivation: ____
Call Forwarding Activation Busy/DA: ____ All: ____ Deactivation: ____
Call Park Access Code: ____
Call Pickup Access Code: ____
CAS Remote Hold/Answer Hold-Unhold Access Code: ____
CDR Account Code Access Code: ____
Change Coverage: ____
Data Origination Access Code: ____
Data Privacy Access Code: ____
Directed Call Pickup Access Code: ____
Emergency Access To Attendant Access Code: ____
Extended Call Fwd Activate Busy D/A: ____ All: ____ Deactivation: ____
Facility Test Calls Access Code: ____
Flash Access Code: ____

Screen 5-4. Feature Access Code (FAC) form (page 1)

11. The Feature Access Code (FAC) screen (page 1) appears.
12. In the Auto Route Selection (ARS) Access Code 1: field, administer the ARS access code (in the example above, type **9**) and press Enter (must match dial plan).
13. At the prompt, enter **change ars analysis <9>** and press Enter.

ARS DIGIT ANALYSIS TABLE											
Partitioned Group Number: <u> </u>										Percent Full: <u> </u>	
Dialed String	Total Mn Mx	Rte Pat	Call Type	Nd Num	ANI Rq	Dialed String	Total Mn Mx	Rte Pat	Call Type	Nd Num	ANI Rq
9	7_ 7_	2_	hnpa	___	n	_____	___	___	___	___	___
976	7_ 7_	den	hnpa	___	n	_____	___	___	___	___	___
11	2_ 2_	11_	emer	___	n	_____	___	___	___	___	___
911	3_ 3_	12_	emer	___	n	_____	___	___	___	___	___

Screen 5-5. ARS Digit Analysis Table

- 14. On ARS Digit Analysis Table screen appears. In the Dialed String field, in the first empty row, enter **11**.
- 15. In the Total Mn field, enter **2**.
- 16. In the Total Mx field, enter **2**.
- 17. In the Rte Pat field, enter the desired Route Pattern (in the example above the route pattern is 11).

⇒ NOTE:
 For the following step, if you are using the Attendant Crisis Alerting feature, type **alrt** instead of “emer.”

- 18. In Call Type field, enter **emer**.
- 19. On the next empty row, in the Dialed String field, type **911**.
- 20. In the Total Mn field, enter **3**.
- 21. In the Total Mx field, enter **3**.
- 22. In the Rte Pat field, type the desired Route Pattern (in the example above the route pattern is 12).

⇒ NOTE:
 For the following step, if you are using the Attendant Crisis Alerting feature, type **alrt** instead of “emer.”

- 23. In the Call Type field, enter **emer** and press Enter.

24. At the prompt, type **change route-pattern <number>** (the route pattern to be changed; in the example below, the route pattern is 11) and press Enter.

Page 1 of X

Pattern Number: 11

Grp. No.	FRL	NPA	Pfx	Hop	Toll	No. Del	Inserted	IXC
			Mrk	Lmt	List	Digits	Digits	
1:	1	0						user
2:								user
3:								user
4:								user
5:								user
6:								user

	BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering	LAR				
	0	1	2	3	4	W	Request	Format					
1:	y	y	y	y	y	n	y none		both ept	outwats-bnd	BAND:		none
2:	y	y	y	y	y	n	n		rest				next
3:	y	y	y	y	y	n	n		rest				rehu
4:	y	y	y	y	y	n	n		rest				none
5:	y	y	y	y	y	n	n		rest				none
6:	y	y	y	y	y	n	n		rest				none

Screen 5-6. Route Pattern form (Page 1)

25. On the Route Pattern screen, in Grp. No. field, enter the CAMA trunk group number.
26. In the FRL field, enter 0.



NOTE:

For the following step, if the Central Office (CO) wants KP11ST as the dialed digit string, then leave blank. If the CO wants KP911ST, then insert a "9" in the Inserted Digits field.

27. Administer the Inserted Digits field if needed and press Enter.

28. At the prompt, type **change route-pattern <number>** (the route pattern to be changed; in the example below, the route pattern is 12) and press Enter.

Page 1 of X

Pattern Number: 12

Grp. No.	FRL	NPA	Pfx	Hop	Toll	No. Del	Inserted	IXC
			Mrk	Lmt	List	Digits	Digits	
1:	1	0				1		user
2:								user
3:								user
4:								user
5:								user
6:								user

	BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering	LAR			
	0	1	2	3	4	W	Request	Format				
1:	y	y	y	y	n	y	none		both ept	outwats-bnd	BAND: _____	none
2:	y	y	y	y	n	n			rest	_____		next
3:	y	y	y	y	n	n			rest	_____		rehu
4:	y	y	y	y	n	n			rest	_____		none
5:	y	y	y	y	n	n			rest	_____		none
6:	y	y	y	y	n	n			rest	_____		none

Screen 5-7. Route Pattern form (Page 1)

29. On the Route Pattern screen, in Grp. No. field, type the CAMA trunk group number and press Enter.
30. In the FRL field, type 0.



NOTE:

For the following step, if the Central Office (CO) wants KP911ST as the dialed digit string, then leave blank. If the CO wants KP11ST, then delete one digit.

31. Administer No. Del Digits field if needed and press Enter.
32. At the prompt, type **change cama-numbering** and press Enter.

Page 1 of 3

CAMA NUMBERING - E911 FORMAT

System CESID Default: 5241100_____

Ext Len	Ext Code	CESID	Total Length	Ext Len	Ext Code	CESID	Total Length
4_	101_	5381234_____	7_	—	_____	_____	—
4_	1_	555_____	7_	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—

Screen 5-8. CAMA Numbering Format form

33. In the CAMA Numbering - E911 Format screen (page 1), in System CESID Default: field, enter your own system default and press Enter. This is the number outpulsed when the extension code is not found in the CAMA Numbering table. See [Screen 5-8](#).
34. In the Ext Len, Ext Code, CESID, and Total Length fields, fill out to your own CAMA numbering plan and press Enter. Be sure to cover all extensions.
35. At the prompt, type **change cor <number>** (the class of restriction (COR) to be changed) and press Enter. Change all CORs that are defined for stations in order to remove any calling party restrictions for 911 calls.

Page 1 of 3

CLASS OF RESTRICTION

COR Number: 10
 COR Description: supervisor

FRL: 0 APLT? y

Can Be Service Observed? n Calling Party Restriction: none

Can Be A Service Observer? n Called Party Restriction: none

Time of Day Chart: 1 Forced Entry of Account Codes? n

Priority Queuing? n Direct Agent Calling? n

Restriction Override: none Facility Access Trunk Test? n

Restricted Call List? n Can Change Coverage? n

Unrestricted Call List?

Access to MCT? y Fully Restricted Service? n

Category For MFC ANI: 7 Hear VDN of Origin Annc.? n

Send ANI for MFE? n Add/Remove Agent Skills? n

Hear System Music on Hold? y PASTE (Display PBX Data on Phone)? n

Automatic Charge Display? n

Can Be Picked Up By Directed Call Pickup? n

Can Use Directed Call Pickup? n

Screen 5-9. Class of Restriction form (page 1)

36. On the Class of Restriction screen (page 1), in the Calling Party Restriction: field, type **none** and press Enter.
37. Type **Save Translation** and press Enter.

Install the BRI Terminating Resistor

The resistors balance the cable plant between the receiver and the transmitter on the interface. When using the TN2198 ISDN-BRI 2-Wire U Interface circuit pack, an NT1 is required. A terminating resistor is always required near the terminal when the BRI S-type interface circuit pack (TN556 BRI 4-Wire S-NT Line circuit pack) is used (see *#5ESS Switch Integrated Services Digital Network Customer Premises Planning Guide*, 533-700-100).

The resistor is built into the NT1 and can be one of three values, depending on the configuration and the distance from the NT1 to the ISDN terminal. The resistor value is controlled from the NT1. A terminating resistor adapter may be needed near the terminal and can be placed in the satellite closet or work location.

⇒ NOTE:

The 440A4 terminating resistor and 110RA1-12 terminating resistor block are UL listed. Most new installations are the 110RA1-12 terminating resistor block. The following installation instructions should be observed.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

- Never touch uninsulated wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Terminating Resistor Adapter

[Figure 5-21](#) shows an 8-pin 440A4 terminating resistor adapter. The adapter is three inches long with an 8-wide plug at one end, a short cord, and an 8-wide jack at the opposite end.

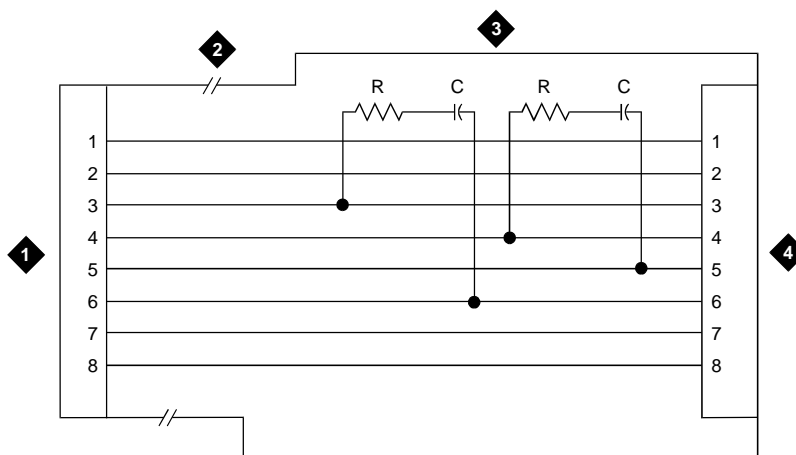


Figure Notes

- | | |
|----------------|--------------------|
| 1. 8-Wide Plug | 3. Plastic Housing |
| 2. Cord | 4. 8-Wide Jack |

Figure 5-21. 8-Wide Terminating Resistor Adapter (440A4)

Closet Mounted (110RA1-12)

The 110RA1-12 terminating resistor block is designed to mount in the telecommunications wire closet. It consists of twelve 2-pair circuits and provides the 100 Ohm termination used for ISDN-BRI circuits.

[Figure 5-22](#) shows the wiring of the 110RA1-12. Three rows of 110D-4 connector blocks are mounted on a printed wire board along with circuit resistors and capacitors. The bottom row is designated as the input row and the top and middle rows are designated as the output rows. The circuit assembly is mounted on a standard 110A-100 pair mounting base. The 110RA1-12 is shipped with preprinted designation strips to simplify circuit identification and installation.

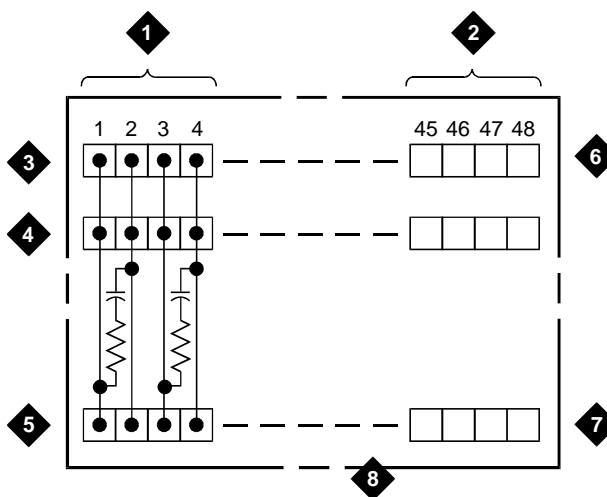


Figure Notes

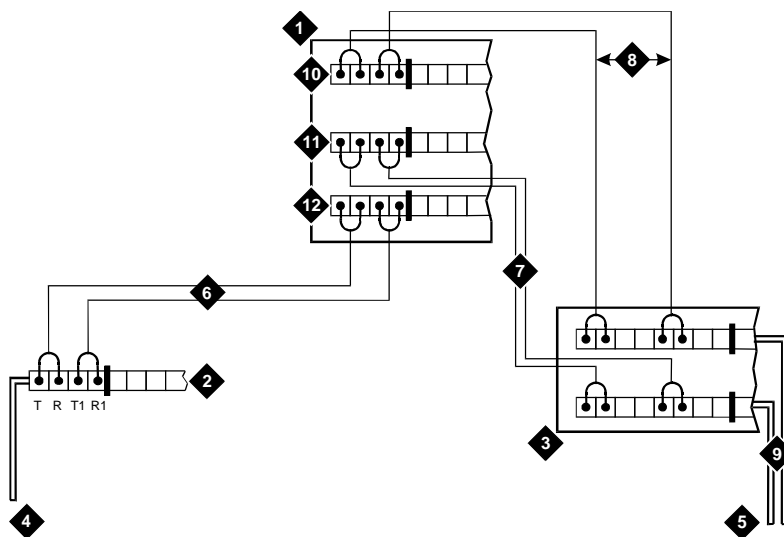
- | | |
|-------------------|--|
| 1. Circuit 1 | 6. Only First Circuit Shown to All 12
Circuits (2APR) Per Block |
| 2. Circuit 12 | |
| 3. Output Row "A" | 7. 110D-4 Connector Block |
| 4. Output Row "B" | 8. Printed Circuit Board Mounted on
Standard 110A or 100APR Block |
| 5. Input Row "C" | |

Figure 5-22. Terminating Resistor Block (110RA1-12)

5 Install and Wire Telephones and Other Equipment
Install the BRI Terminating Resistor

5-61

Figure 5-23 shows the wiring connections for the 110RA1-12 terminal block. The TN556 BRI switch port is terminated to bottom row C.

**Figure Notes**

- | | |
|---|-----------------------------|
| 1. Part of Terminating Resistor Block | 7. Basic Multi-point Option |
| 2. White or Purple Field | 8. 2-Pair Cross-Connect |
| 3. Part of 4-Pair Blue Field | 9. 4-Pair Horizontal Cables |
| 4. From ISDN T-interface Circuit (2-Pair) | 10. Row "A" |
| 5. To ISDN S/T-interface Terminals | 11. Row "B" |
| 6. 2-Pair Cross-Connect | 12. Row "C" |

Figure 5-23. Typical Installation of Terminating Resistor Block Using Multi-point Connection

For point-to-point wiring, the top row is connected to the blue station field. The pair connects from the 110RA1-12 to the standard 4-pair circuit. Pair 1 from the 110RA1-12 is connected to Pair 1 of the station field, and Pair 2 is connected to Pair 3 of the station field.

Two terminal basic multi-point applications are accommodated by connecting row B (output) to the second terminal common to the multi-point circuit.

Install Multi-point Adapters

Multi-point adapters are used to provide signal fanout of the T-interface. Fanout can be performed at the work station by the BR851-B or the 367A. These adapters support more than one ISDN terminal per horizontal 4-pair D-inside wire (DIW). To support multiple horizontal runs, fanout must be performed in the satellite closet by a MDF with multiple common rows. The 110RA1-12 provides fanout for two horizontal runs and contains the 100 Ohm terminating resistor. This can be used for basic multi-point or point-to-point with terminating resistor in the closet. Other fanout blocks include the 110AB1-025M and the 110AB1-050M.

BR851-B Adapter (T-Adapter)

The BR851-B supports two terminals on one multi-point BRI at the work station. It is a T-shaped device used to fanout transmission and power. The BR851-B is an 8-pin device with a single plug and two jacks. See [Figure 5-24](#).

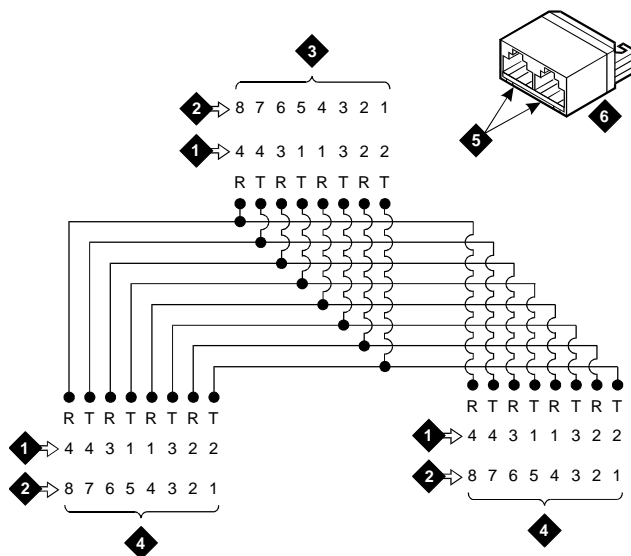


Figure Notes

- | | |
|------------------------|----------------------------|
| 1. Wire Pairs | 4. Female |
| 2. Pin Numbers | 5. Two 8-pin Modular Jacks |
| 3. Modular Plug (Male) | 6. T-Type Adapter |

Figure 5-24. Wiring Diagram of BR851-B

367A Adapter

The 367A is an 8-conductor adapter used at the work location to bridge 3 to 7 terminals. See [Figure 5-25](#).

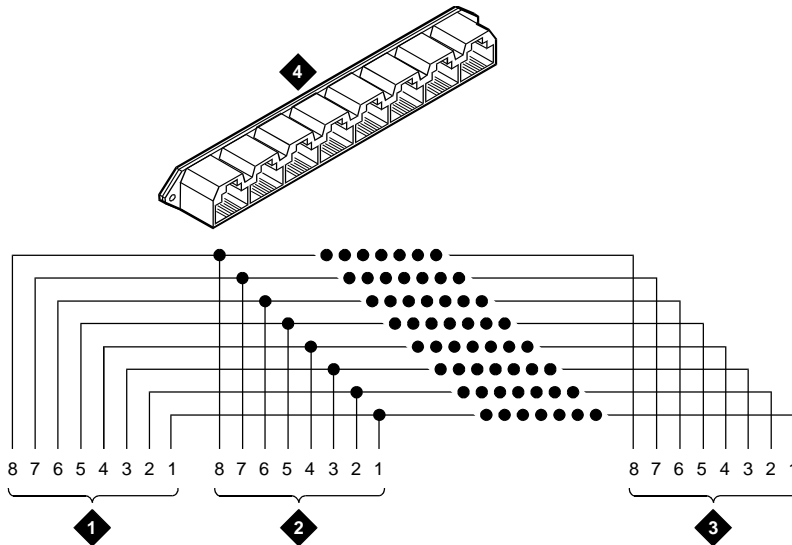


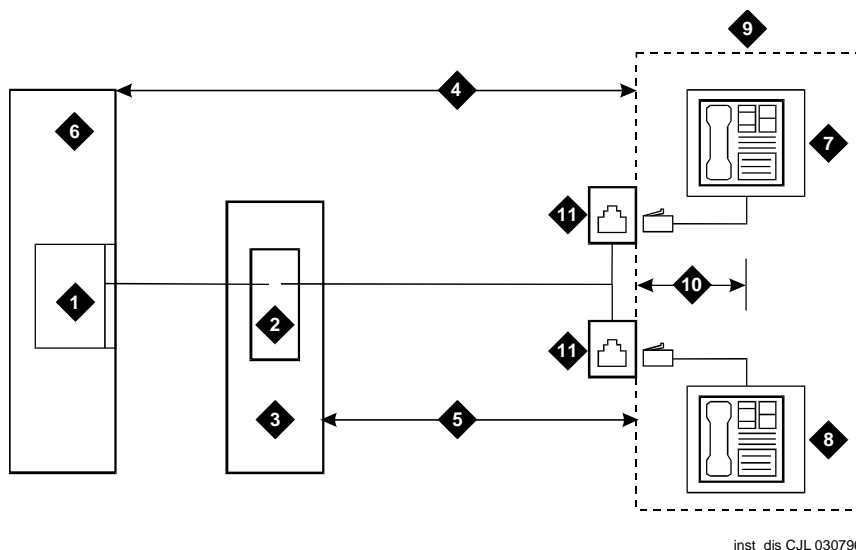
Figure Notes

- | | |
|-----------|-----------------|
| 1. Jack 1 | 3. Jack 8 |
| 2. Jack 2 | 4. 367A Adapter |

Figure 5-25. Wiring Diagram of 367A Adapter

Basic Multi-point Installation Distances

Figure 5-26 provides cabling information for fan-out of ISDN-BRI multi-point installations. In Figure 5-26, the terminating resistor is located in the satellite closet. All distances assume 24 AWG (#5) (0.5 mm²) D-Inside Wire (DIW).



inst_dis CJL 030796

Figure Notes

- | | |
|--|---|
| 1. S-Interface Source (TN556) | 6. System Cabinet |
| 2. Terminating Resistor | 7. Terminating Endpoint 1 |
| 3. Satellite Closet | 8. Terminating Endpoint 2 |
| 4. Maximum Distance from S-Interface Source to Work Location (1600 Feet) (488 m) | 9. Work Location |
| 5. Maximum Distance From Terminating Resistor to Work Location (250 Feet) (76 m) | 10. Maximum Distance from Information Outlet to Terminating Endpoint (33 Feet) (10 m) |
| | 11. Information Outlet |

Figure 5-26. Basic Multi-point with One Work Location

Connect Stratum 3 Clock

Set Clock Options

1. There are four sets of option switches on the clock. Set the options on the Clock Input (CI) circuit pack per [Table 5-15](#).

Table 5-15. CI Option Switch Settings

Switch	Function	Position
1	T1 Select	OFF = enable (default) ON = disable
2	CC Select	OFF = enable ON = disable (default)
3	Framing Select	OFF = ESF ON = D4 (default)
4	BX.25	OFF = enable ON = disable (default)

2. Set the options on the Stratum 3 Clock (ST3) circuit pack per [Table 5-16](#).

Table 5-16. ST3 Clock Circuit Pack Option Switch Settings

Switch	Status/Results
SW1 Minor Alarm Control	OFF = minor alarm never output ON = minor alarm is output if holdover occurs
SW2 Major Alarm Control	OFF = major alarm is output and fail lamp lights if 5 VDC power is lost and 4 kHz output is lost ON = major alarm is output and fail lamp lights if 5 VDC power is lost and 4 kHz output is lost and holdover occurs



NOTE:

Only SW 1 and SW2 are used. SW1 controls the output of alarm signals from the Stratum 3 Clock circuit pack.

3. Set the options on the Composite Clock Timing Output (TOCA) circuit pack per [Table 5-17](#).
4. Set the Stratum 2/Stratum 3 switch to the STRATUM 3 position.

Table 5-17. Composite Clock Timing Output (TOCA) Circuit Pack

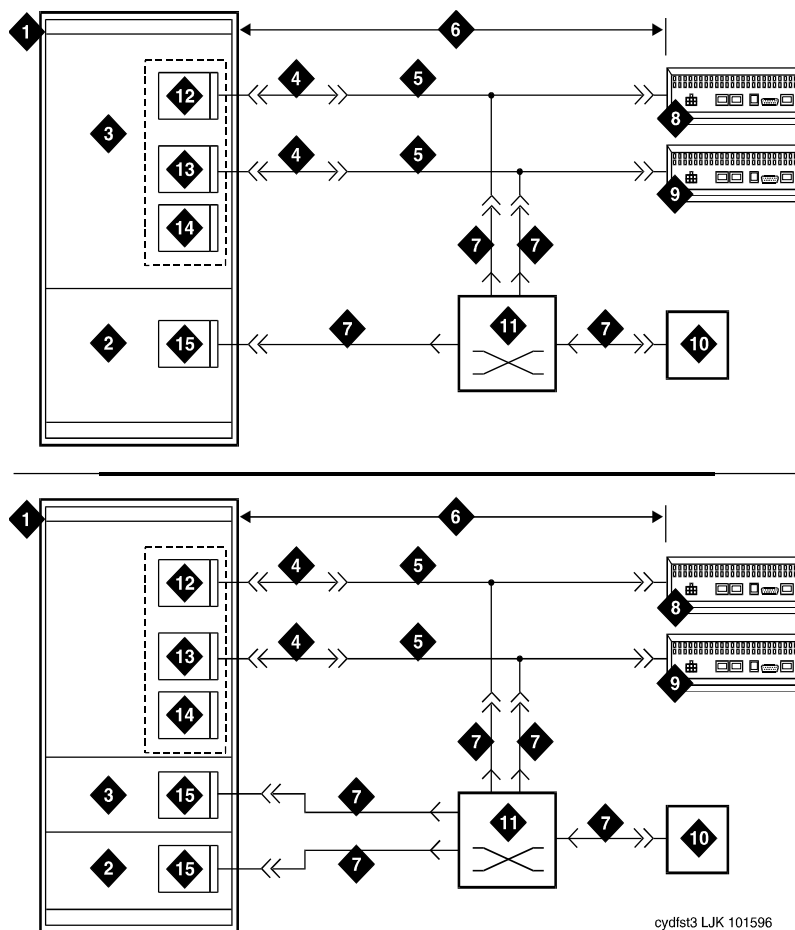
Switch		Range					
		1 Foot (0.3 m)	500 Feet (152 m)	1000 Feet (305 m)	1500 Feet (457 m)	2000 Feet (610 m)	2500 Feet (762 m)
500	1000						
OFF	OFF	<----->					
ON	OFF		<----->				
OFF	ON			<----->			
ON	ON				<----->		

NOTE:
 Set switches 1 and 2 according to the distance from the Stratum 3 clock to the DEFINITY System. Set switch 3 to ON. Set switch 4 to OFF.

Cabling the Stratum 3 Clock

Figure 5-27 shows typical connections to a Stratum 3 Clock cabinet. Connections are made through the yellow field cross-connect. A custom "Y" cable (H600-274) connects the CSU to the DS1 circuit pack and taps off the input for the Stratum 3 Clock. A resistor built into the cable provides the necessary isolation between the system and the clock. The "Y" cable plugs directly into the CSU and connects to standard cables for interface to the system and the yellow field on the MDF.

The H600-307 cable connects the system end of the "Y" cable to a DS1 circuit pack (shown as TN464/2464, TN722, or TN767). The B25A cable connects the clock end of the "Y" cable to the yellow field on the MDF.



cyd1st3 LJK 101596

Figure Notes:

- | | |
|-------------------------------------|-----------------------------------|
| 1. SCC Cabinet (PPN) | 9. Channel Service Unit (Primary) |
| 2. "A" Position | 10. Stratum 3 Clock |
| 3. "B" Position | 11. Main Distribution Frame (MDF) |
| 4. H600-307 Cable | 12. DS1/E1 Interface Circuit Pack |
| 5. H600-247 G2 Cable | 13. DS1 Tie Trunk Circuit Pack |
| 6. 1300 Feet (396 m) | 14. DS1 Interface Circuit Pack |
| 7. B25A (Male-to-Female) Cable | 15. Tone-Clock Circuit Pack |
| 8. Channel Service Unit (Secondary) | |

Figure 5-27. Typical Connections to Stratum 3 Clock

Stratum 3 Clock Wiring Installation Procedure

1. Connect the B25A cables from the TN780 connector panel slot on the system cabinet and the Stratum 3 Clock to the cross-connect module in the yellow field.
2. Connect the CSU plug end of the H-600-274 (Y) cable to the primary CSU. Route an H600-307 cable from the DS1 connector panel slot on the system cabinet to the connector on the "SYSTEM" end of the "Y" cable.
3. Route a B25A cable from the "CLOCK" end of the "Y" cable to the cross-connect module in the yellow field.
4. Repeat steps 2 and 3 for the secondary CSU. The maximum allowable cabling distance between the Stratum 3 clock and the CSU is shown in [Table 5-18](#).

Table 5-18. Maximum Cabling Distance

Channel Service Unit (CSU)	Maximum Cabling Distance
551A	85 Feet (26 m)
551V	85 Feet (26 m)
551V EFS/R	655 Feet (199.6 m)
EFS T1	655 Feet (199.6 m)

5. For standard reliability systems, refer to [Table 5-19](#) to cross-connect the TN780 and "CLOCK" end connections to the Stratum 3 Clock connections on the cross-connect module.
6. For high or critical reliability systems, refer to [Table 5-20](#) to cross-connect the TN780 and "CLOCK" end connections to the Stratum 3 Clock connections on the cross-connect module.

Table 5-19. Cross-Connects for Standard Reliability

From: Stratum 3 Clock			To: Y Cable Clock End (Primary)		
Lead Designation	Lead Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal
RREF1	W-BL	1		V-O	43
TREF1	BL-W	2		O-V	44
			To: Y Cable Clock End (Secondary)		
RREF2	W-O	3		V-O	43
TREF2	O-W	4		O-V	44
			To: Tone-Clock Carrier A		
BCLKRTN	R-O	13	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41
CCA01T	S-R	20	EXTSYN0R	BL-V	42
CCB01R	BK-BL	21	EXTSYN1T	Y-G	35
CCB01T	BL-BK	22	EXTSYN1R	G-Y	36

Table 5-20. Cross-Connects for High or Critical Reliability

From: Stratum 3 Clock			To: Y Cable Clock End (Primary)					
Lead Designation	Lead Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal			
RREF1	W-BL	1		V-O	43			
TREF1	BL-W	2		O-V	44			
			To: Y Cable Clock End (Secondary)					
RREF2	W-O	3		V-O	43	Lead Designation	Lead Color	Connecting Block Terminal
TREF2	O-W	4		O-V	44			
			To: Tone-Clock Carrier A			To: Tone-Clock Carrier B		
BCLKRTN	R-O	13	ALRM5B	V-G	45	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46	ALRM5A	G-V	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41			
CCA01T	S-R	20	EXTSYN0R	BL-V	42			
CCB01R	BK-BL	21	EXTSYN1T	Y-G	35			
CCB01T	BL-BK	22	EXTSYN1R	G-Y	36			
CCA02R	BK-O	23				EXTSYN0T	V-BL	41
CCA02T	O-BK	24				EXTSYN0R	BL-V	42
CCB02R	BK-G	25				EXTSYN1T	Y-G	35
CCB02T	G-BK	26				EXTSYN1R	G-Y	36

7. The common cross-connection from the TN780 in A and B carriers to the Stratum 3 Clock should be done by bridging the jumper wires.
8. Dress the cables down sides of the cabinet and run through the Cable Slack Manager, if provided.
9. Administer per *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

DEFINITY Wireless Business System

To install and test the hardware, refer to *DEFINITY Wireless Business System Installation and Tests Guide*.

To interface the Wireless Business System to the system cabinet, refer to *DEFINITY Wireless Business System Interface*.

To operate the wireless handsets, refer to *DEFINITY Wireless Business System User's Guide*.

Cellular Business System

The DEFINITY Cellular Business System allows use of the same full-feature cellular telephone inside and outside of the building. The system supports up to 600 users. Total system coverage is up to 4 million square feet.

Refer to the installation and usage documentation that comes with the system components.

Forum PCM

The Forum Personal Communications Manager uses a Forum switch, serving as an adjunct to DEFINITY ECS, to manage mobility. The system uses Cordless Telephone Generation 2 (CT2) technology, which is a global standard for wireless telephone service. This standard defines the radio interface between the Forum pocket telephones and the base stations in the system.

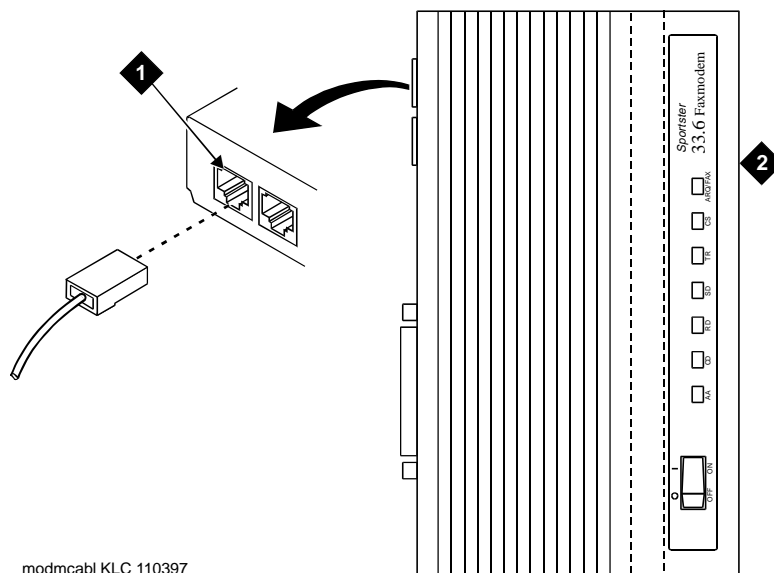
Refer to the installation and usage documentation that comes with the Forum Personal Communications Manager components.

Connect Modem to Telephone Network

1. Cross-connect the network jack on the modem to the network interface (via a 103A or modular wall jack). See [Table 5-21](#) for the pinout.

Table 5-21. Pinout of Network Jack

Pin Number	Signal
1	Unused
2	Tip
3	Ring
4	Unused



modmcabl KLC 110397

Figure Notes

1. Pin 1 of network jack

2. Modem

Figure 5-28. Network Jack on U.S. Robotics Modem

External Modem Option Settings

A locally obtained, type-approved external modem may be used. Contact your Lucent Technologies representative for information.

1. If a non-U.S. Robotics Model 839 modem is installed, refer to the setup instructions provided with that modem. Refer to [Table 5-23](#) while setting up the modem. Go to Step 4 to complete the modem administration.
2. If no modem is installed, skip to step 5. If a U.S. Robotics Model 839 modem is installed, perform the following.
3. Use [Table 5-22](#) to set the 8 option switches on the U.S. Robotics modem.

Table 5-22. U.S. Robotics Model 839 External Modem Switch Settings

Switch	Setting	Function
1	OFF (Up)	DTR (Data Terminal Ready) override
2	OFF (Up)	Verbal result codes (text-formatted feedback characters such as <i>connected</i> or <i>no carrier</i>)
3	ON (Down)	Enable result codes
4	OFF (Up)	Displays keyboard commands (local echo)
5	OFF (Up)	Sets auto answer. Verify that the <code>Auto Answer Ring Count (rings):</code> on the maintenance-related system parameters form is <code>S0=10</code> .
6	OFF (Up)	CD (Carrier Detect) override (modem sends CD signal on connect, drops CD on disconnect)
7	OFF (Up)	Power-on and ATZ reset software defaults (loads Y or Y1 configuration from NVRAM)
8	ON (Down)	AT (Attention) command set recognition (enables recognition, smart mode)

4. At the management terminal, enter **change system-parameters maintenance** and press Enter. Scroll to page 3 of the form.
5. Set the `Modem Connection:` field to **external** if a modem is installed. Set the field to **none** if no modem is installed. This field must be administered or alarms will be generated.



NOTE:

The `Modem Connection:` field cannot be set to **none** if Alarm Origination is activated.

6. Set the `Data Bits:` field to **8** (default).
7. Set the `Parity:` field to **none** (default).
8. For non-United States installations, set the remaining modem fields as shown in [Table 5-23](#).

9. Press Enter when the modem fields are properly administered.

Table 5-23. Release 8 SCC Modem Fields

Field	Description
Modem Connection	Default is none for Release 8 SCC. Set to external if a modem is used.
Modem Name	This field is 20 characters long and permits alphanumeric characters to provide a unique qualifier for a given modem.
RTS/CTS Enabled	Informs modem that communication with the data source UART is driven with RTS/CTS flow control. The default 6-character field name is &H1 . Set the field name to \Q3 for Intel modems. This field is not case-sensitive.
Asynchronous Data Mode	Configures modem as an asynchronous device. This 8-character field name has a default value of &M0 (default) for Release 8 SCC. Set the field to &M0&Q0 for Intel modems. This field is not case-sensitive.
DTE Auto-Data Speed	Adjusts the speed of the data source (DTE) UART to the outgoing (modem-to-modem) data rate. At maximum, this speed is 9600 baud. It is not desirable to have the serial data fill the modem buffer faster than the outgoing data rate, since data compression is disabled. The field name has a 6-character blank default value. The Paradyne products use S90=1 to enable this functionality while the Intel product uses \J1 to enable similar functionality. This field is not case-sensitive.
Disable Data Compression	Turns off the default data compression algorithms used by most modems. The field has a blank field of 6 characters as default. The AT commands that control this are supported by similar commands; however, these commands do not operate in the same manner. The Intel modems require H0%C0 to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use %C0 to disable both algorithms. This field is not case-sensitive.
Enable Error Control	Turns on the V.42 LAPM and MNP error control protocols. The field has a blank default of 6 characters. The Paradyne products use the command \N5 to enable V.42/MNP/Buffer error control while the Intel product uses \N3 to provide similar functionality.
Misc. Init. Param	This field has a 20-character blank default and supports any initialization parameters not already specified. The AT commands specified in this field are always the last initialization parameters to be sent to the external modem. This field is not case-sensitive.
Auto-Answer Ring Number	This field controls the number of rings required before the modem answers an incoming call. This field should be set to S0=10 .

Continued on next page

Table 5-23. Release 8 SCC Modem Fields — *Continued*

Field	Description
Dial Type	This field controls the type of interregister signaling used between the modem and the CO. This 3-character field is denoted by “T” for tone dialing (default) and “P” for pulse dialing. This setting depends on type of line (tone or pulse) to the modem.
Adjustable Make/Break Ratio	This field controls the make/break ratios of pulses and DTMF dialing. Most modems have support for different make/ break options for pulse dialing only. Paradyne, Intel, and U.S. Robotics use the default &P0 to select a ratio of 39% make and 61% break for communication for the United States and Canada. The option &P1 sets a ratio of 33% make and 67% break for the United Kingdom and Hong Kong. This is a 5-character blank field (default) and is not case-sensitive.
Dial Command	This field has a default of “D” in a 3-character field. This field denotes the standard dialing command of the modem and is not case-sensitive.
No Answer Time-Out	Most modems provide a timer that abandons any outbound data call after a predetermined interval. This is a non-administrable parameter.

Add Circuit Packs

When installing additional features or equipment, it may be necessary to install additional port circuit packs. See [Table 5-24](#) for a list of circuit packs. This is a general procedure to use when adding features or equipment that require adding circuit packs.



CAUTION:

The control circuit packs with white labels cannot be removed or installed when the power is on. The port circuit packs with gray labels (older version circuit packs had purple labels) can be removed or installed when the power is on.

1. Log onto the system and answer **y** to the *Suppress Alarm Origination* question during login.
2. Install the circuit pack into the carrier.

3. Log off the system after the addition (and any required administration) is complete.

⇒ NOTE:

If North American and non-United States circuit packs appear in the same row of a table, those circuit pack codes ordinarily used in North America appear in bold font to help distinguish these circuit packs from their non-United States counterparts. If only circuit packs commonly used for non-United States applications appear in a row of a table, the circuit-pack codes are enclosed in parentheses. If only circuit packs commonly used in North America appear in a row of a table, the circuit pack codes are enclosed in square brackets.

For information about connecting and administering non-United States circuit packs, refer to the Application Notes in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

List of Circuit Packs

[Table 5-24](#) lists the circuit packs sorted by apparatus code, including circuit packs used in non-United States installations. For more information on the circuit packs and other equipment, refer to *DEFINITY Enterprise Communications Server Release 8 System Description*.

Table 5-24. Circuit Packs and Circuit Modules

Apparatus Code	Name	Type
631DA1	AC Power Unit (MCC) (+5V, 60A)	Power
631DB1	AC Power Unit (MCC) (-48V/-5V,8A)	Power
644A1	DC Power Unit (MCC) (+5V, 60A)	Power
645B1	DC Power Unit (MCC) (-48V, 8A)	Power
649A	DC Power Unit (MCC) (-5, +5, -48V)	Power
982LS	Current Limiter for si only (PPN)	Power
CFY1B	Current Limiter for r only	Power
CPP1	Memory Expansion	Control
ED-1E546-70 (TN2169) (TN2170) (TN566) (TN567)	DEFINITY AUDIX R3 (Circuit-Pack Assembly) (being replaced by ED-1E568)	Application

Continued on next page

Table 5-24. Circuit Packs and Circuit Modules — Continued

Apparatus Code	Name	Type
ED-1E546-70 (TN2208) (TN2170)	CallVisor ASAI/DEFINITY LAN Gateway R1 (Circuit-Pack Assembly)	Application
J58890MA-1 (TN801)	Multi Application Platform DEFINITY (Circuit Pack Assembly) List 2 for Call Visor, ASAI, LAN Gateway R2 List 10 for IP Trunk List 20 for CV ASAI, CentreVu Computer Telephony, BCMS Vu List 30 for IP Solutions	Application
TN417	Auxiliary Trunk (replaced by TN763D)	Trunk
TN419B	Tone-Clock (Italy, Australia and the United Kingdom, replaced by TN2182B)	Control
TN420B/C	Tone Detector (replaced by TN2182B or TN744D)	Service
TN429/B	Direct Inward/Outward Dialing (DIOD) Trunk (Japan)	Port
TN429C/D	Analog Central Office Trunk (with CAMA)	Port
TN429D	Analog DIOD Trunk - Analog Loop Start	Port
TN433	Speech Synthesizer (Italian)	Service
TN436B	Direct Inward Dialing Trunk (Australia)	Port
TN437	Tie Trunk (Australia, replaced by TN760D)	Port
TN438B	Central Office Trunk (Australia)	Port
TN439	Tie Trunk (Australia and Japan)	Port
TN447	Central Office Trunk	Port
TN457	Speech Synthesizer, British English	Service
TN458	Tie Trunk for the United Kingdom (replaced by TN760D)	Port
TN459B	Direct Inward Dialing Trunk for the United Kingdom	Port
TN464C/D/E/F	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN465/B/C	Central Office Trunk (Multi-Country, 16-kHz PPM)	Port

Continued on next page

Table 5-24. Circuit Packs and Circuit Modules — Continued

Apparatus Code	Name	Type
TN467	Analog Line for the United Kingdom and Australia (replaced by TN2183)	Port
TN468B	Analog Line for the United Kingdom and Australia (replaced by TN2183) (16 ports)	Port
TN479	Analog Line (16 ports)	Port
TN497	Tie Trunk - Italy	Port
TN553	Packet Data Line	Port
TN556/B/C/D	ISDN Line (12-BRI-S-NT)	Port
TN570/B/C	Expansion Interface	Port
TN572	Switch-Node Clock for r only	Control
TN573B	Switch-Node Interface for r only	Control
TN574	DS1 Converter (replaced by TN1654) (G3rV2 and later)	Port
TN722B	DS1 Tie Trunk (replaced by TN767B/C/D/E) (24 ports)	Trunk
TN725B	Speech Synthesizer, United States English	Service
TN726B	Data Line (8 ports)	Line
TN735	MET Line (4 ports)	Line
TN742	Analog Line (8 ports) (replaced by TN746B)	Line
TN744B/C/D	Call Classifier Tone Detector, Multi-Country	Service
TN746B	Analog Line (US and Canada Offer A Only) (16 ports)	Line
TN747B	Central Office Trunk(8)	Trunk
TN748B/C/D	Tone Detector (replaced by TN2182B)	Service
TN750B/C	Announcement	Service
TN753B	Direct Inward Dialing Trunk (8 ports)	Trunk
TN753/B	Direct Inward Dialing Trunk	Port
TN754/B/C	Digital Line 4-Wire DCP	Port
TN755/B	Neon Power Unit	Power
TN756	Tone Detector/Generator (XE) (replaced by TN2182B)	Service
TN758	Pooled Modem (2 ports)	Port

Continued on next page

Table 5-24. Circuit Packs and Circuit Modules — Continued

Apparatus Code	Name	Type
TN760D/E	Tie Trunk (4 ports)	Trunk
TN762B	Hybrid Line (8 ports)	Line
TN763B/C/D	Auxiliary Trunk (4 ports)	Trunk
TN767B/C/D/E	DS1 Interface - T1, 24 Channel	Port
TN768	Tone-Clock (replaced by TN2182B)	Control
TN769	Analog Line (8 ports) (Neon)	Line
TN771B/C/D	Maintenance Test	Service
TN773	Processor	Control
TN775/B/C	Maintenance (EPN)	Service
TN776	Expansion Interface (si only)	Port
TN780	Tone Clock (all models except csi, Stratum 3)	Control
TN787F/G/H/J/ K	Multimedia Interface	Service
TN788B	Multimedia Voice Conditioner	Service
TN789	Radio Controller	Control
TN790B	Processor (R7 si and later)	Control
TN791	Analog Guest Line (16 Port)	Line
TN792	Duplication Interface (for TN790B Processor Circuit Packs, si only)	Control
TN793B	24-Port Analog Line	Line
TN794	Network Control/Packet Interface for si only	Control
TN797B	Analog trunk and line combo	Port
TN799B	Control-LAN (C-LAN)	Port
TN800	Multi-Application Platform for DEFINITY (MAPD)	Port
TN801	Multi-Application Platform for DEFINITY (MAPD)	Port
TN802B	IP Interface Assembly	Port
TN1648/B	System Access/Maintenance (SYSAM)	Control
TN1650B	Memory (32MB) for r only	Control
TN1654	DS1 Converter - T1, 24 Channel/E1, 32 Channel	Port

Continued on next page

Table 5-24. Circuit Packs and Circuit Modules — Continued

Apparatus Code	Name	Type
TN1655	Packet Interface	Control
TN1657	Disk Drive	Control
TN2135	Analog Line	Port
TN2136	Digital Line 2-Wire DCP	Port
TN2138	Central Office Trunk (Italy, Loop Start)	Port
TN2139	Direct Inward Dialing Trunk (Italy)	Port
TN2140/B	Tie Trunk (Hungary, Italy)	Port
TN2144	Analog Line (The Netherlands, replaced by TN2183) (16 port)	Port
TN2146	Direct Inward Dialing trunk (Belgium and The Netherlands)	Port
TN2147/C	Central Office Trunk (without PPM, replaces TN447)	Port
TN2149	Analog Line for Belgium (replaced by TN2183) (16 port)	Port
TN2180	Analog Line	Port
TN2181	Digital Line (16-ports DCP-2-Wire)	Port
TN2182/B	Tone-Clock -Tone Detector and Call Classifier	Control
TN2183	Analog Line, Multi Country with DSLAC	Port
TN2184	DIOD Trunk (Germany)	Port
TN2185B	ISDN (4-Wire S/T-TE Interface, 8 ports)	Port
TN2198	ISDN Line (4-Wire BRI-U-NT, 8 ports)	Port
TN2199	Central Office Trunk (Russia)	Port
TN2202	50-Hz Ring Generator (France)	Power
TN2207	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN2209	Tie Trunk (Russia)	Port
TN2210	Tone Generator (1780 Hz)	Service
TN2211	Optical Drive (replaces TN1656)	Control
TN2214B	Digital Line, 24-Port, 2-Wire DCP - Category B	Port
TN2215	Analog Line, 16-Port, 2-Wire - Category B	Port

Continued on next page

Table 5-24. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN2224/B	Digital Line, 24-Port, 2-Wire DCP	Port
TN2301	Logic Switch (for r only, Survivable Remote EPN)	Switch
TN2305	DEFINITY ATM Interface (Multi-Mode fiber, Port Network Connectivity, CES Trunk)	Port
TN2306	DEFINITY ATM Interface (Single-Mode Fiber, Port Network Connectivity, CES Trunk))	Port
TN2313	DS1 Interface	Port
TN2464	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN2793	Analog Line 24-Port - Category B	Port
UN331B	Processor	Control
UN332C	MSS Network Control (for r only; used with the TN2211 Optical Drive)	Control

Add DCS Interface

Systems in a Distributed Communications System (DCS) network are interconnected by both tie trunks (for voice communications) and data links (for control and transparent feature information). These data links, also called DCS signaling links, support the feature transparency.

Various subsets (depending on the specific configuration) of DS1 Interface circuit packs (including TN464C, TN767C, TN722, and TN760) provide the voice-communications interface.

Control LAN Circuit Pack

The TN799 Control LAN (CLAN) packet port circuit pack provides TCP/IP connection to adjuncts applications such as CMS, Intuity, and DCS Networking. The CLAN circuit pack has 1 10baseT Ethernet connection and up to 16 DS0 physical interfaces for PPP connections. In addition to the TCP/IP functionality, CLAN extends the ISDN capabilities for csi models by providing Packet bus access.

A remote socket control link (RSCL) links the CLAN and the SPE to pass call control and other management information. Since one link serves all the ports on the circuit pack, maintenance of the RSCL is part of the CLAN circuit pack maintenance.

The CLAN TN799 circuit pack combines the functions of the PGATE and PI circuit packs into one circuit pack. The PGATE or PI can be used with the CLAN to create an X.25-to-TCP/IP bridge for adjunct and DCS connectivity.

The data link interface (between the processor and the physical signaling link) is provided by (or through) the TN799 C-LAN circuit pack. In some configurations, the TN799 passes the signaling information over a separate 10BaseT TCP/IP network (usually via a hub). For use with 10BaseT, connect the appropriate pins of the I/O field to the hub. For pinouts and diagrams, refer to the end of this chapter. In other configurations, the TN799 circuit pack carries signaling over point-to-point protocol (PPP) for subsequent inclusion (via the switching fabric) in the same DS1 bit stream as the DSC voice transmissions.

As an option to the TN768 Tone-Clock, a TN780 Tone-Clock circuit pack (installed in the PPN) can interface external Stratum 3 synchronization for DS1 connections.

For further information about DCS, refer to the following documents:

- *AT&T System 75/85 Network and Data Services Reference Manual*
- *System 75 Application Notes Network Services*
- *DEFINITY ECS Release 8 Administration for Network Connectivity*

Add Circuit Packs

A DS1 circuit pack is required for point-to-point protocol (PPP) connections. A TN799 C-LAN circuit pack is required.

1. Determine the port assignments of the circuit packs to be added. If there are no available port slots in the processor cabinet for the C-LAN circuit pack, place it in a R8 EPN cabinet port slot. You do not need to power down the cabinet to install the circuit pack.

Install Cables

1. Install cable from the cabinet to a hub or Internet Protocol (IP) Switch as required. Connect the 259A connector to the port slot containing the C-LAN circuit pack. See [Figure 5-29](#). For a pinout of TN799, see [Table 5-25](#).

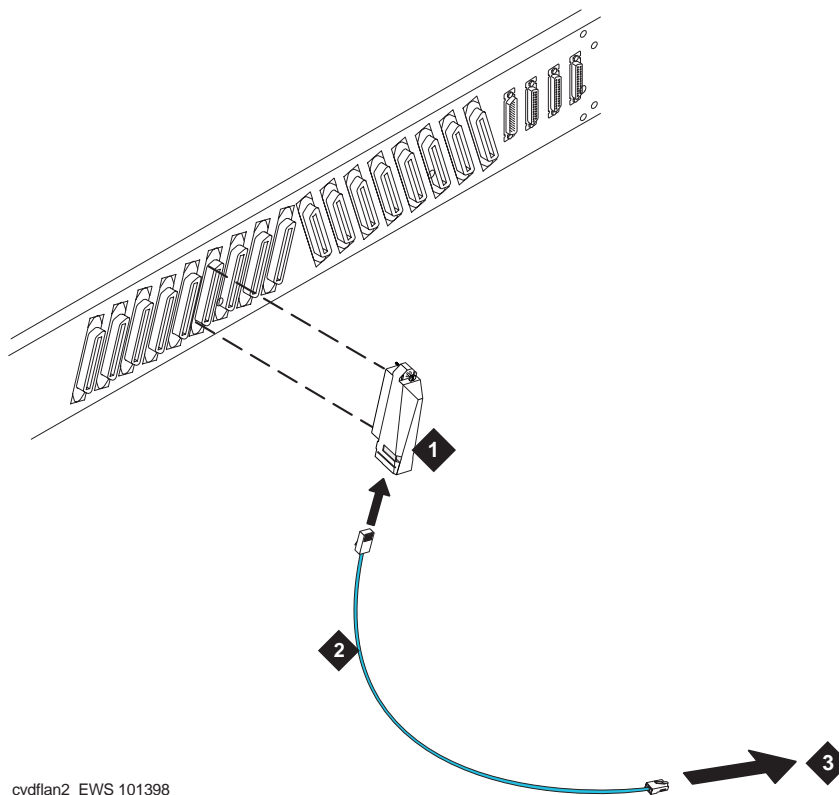


Figure Notes

- | | |
|-------------------|---------------------|
| 1. 259A Connector | 3. Hub or IP Switch |
| 2. DW8A Cable | |

Figure 5-29. Cable Connection for C-LAN

Table 5-25. TN799 Pinout

Backplane Pin	25-Pair Wire Color	Lead Name	Peripheral Connector Pin
103	White/Orange	TD+	27
003	Orange/White	TD-	2
104	White/Green	RD+	28
004	Green/White	RD-	3

Enter Added Translations

1. Get the DOSS order number of the upgrade. Call the regional CSA to perform the steps in this section.
2. To enable DCS, set the `DCS` field on the System Parameters-Customer Options form to `y`.
3. Administer the other required translation data using the forms listed under Distributed Communications System (DCS) in *DEFINITY Communications System Generic 4 V4 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, type **status spe** and press Enter to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Type **save translation [spe-a or both] disk** and press Enter. This command instructs the system to take all translation information in memory and write it to the disk(s).

Add ISDN — PRI

North American

1. Use a TN767E (or later) DS1 or a TN464F DS1/E1 circuit pack for a signaling link and up to 23 ISDN — PRI Trunk Group members.
2. Install a Tone-Clock circuit pack to provide synchronization for the DS1 circuit pack.
3. If using a TN464F, then packet bus support has not been added, requiring greater than 4 PRI signaling groups, see [“Add Packet Bus Support to R8si” on page 5-87](#) for installation of additional circuit packs for packet bus support.

As an option to the TN768 or TN2182B Tone-Clock, a TN780 Tone-Clock (installed in the PPN) can interface external Stratum 3 synchronization for DS1.

International

1. Install a TN464C (or later) DS1/E1 circuit pack for the assignment of the 2 signaling channels and up to 30 ISDN — PRI Trunk Group members. Each E1 span provides 32 ports.
2. Install a Tone-Clock circuit pack to provide synchronization for the DS1/E1 circuit pack.
3. If packet bus support has not been added and greater than 8 PRI signaling groups are required, see [“Add Packet Bus Support to R8si” on page 5-87](#) for installation of additional circuit packs for packet bus support.

As an option to the TN2182B Tone-Clock, a TN780 Tone-Clock (installed in the PPN) can interface external Stratum 3 synchronization for DS1.

Service Interruption

If packet bus support for R8si must be added and TN750s must be installed as part of that support, then adding ISDN — PRI requires a service interruption. Notify the customer in advance as to when the addition will be carried out. See [“Add Packet Bus Support to R8si” on page 5-87](#) for further information.

Add Packet Bus Support

If packet bus support is not already installed, see [“Add Packet Bus Support to R8si” on page 5-87](#) and perform the steps.

Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install the DS1 Interface circuit pack in the assigned carrier slot.
3. Install a TN748B (or later) (or the international TN420B/C) Tone Detector circuit pack if required.

Install Cables

1. Install cables from cabinet to MDF as required.

Enter Added Translations

1. Administer the forms listed under “Integrated Services Digital Network — Primary Rate Interface” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. Update backup cards, if necessary.

Add Packet Bus Support to R8si

Standard Reliability R8si System

Service Interruption

Installing TN570 Expansion Interface circuit packs as part of adding packet bus support requires a service interruption. Notify the customer in advance as to when the addition will be carried out. If not installing TN570 circuit packs, then service is not interrupted and you can skip to the Install Circuit Packs section.

Set Offer Category and Activate Offer

1. Type **change system-parameters offer** and press Enter.
2. Set the Offer Category field to **A**, if not already set.
3. Set the Activate Offer field to **y**.

Disable Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Set the Alarm Origination Activated field to **n**.



CAUTION:

If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.

3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation card.
3. If the system contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter. If administered recorded announcements are listed, type **list configuration software-version long** and press Enter. To save the announcements, type **save announcements** and press Enter.

Power Down Cabinet

1. At the PPN, set the main circuit breaker to OFF.
2. At an EPN, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the appropriate circuit packs. See [Table 5-26](#).

Table 5-26. Circuit Pack Locations for Packet Bus in R8 PPN

Circuit Pack	Carrier	Quantity	Slot
TN570	Control Carrier A	1 or 2 ¹	EXPN INTFC/1 and /2
TN771C	Control Carrier A	1 ²	Any Available Port Slot

1. Quantity of this pack should equal the number of EPNs.
2. Optional for digital trunk testing.

Power Up System

1. At the EPN, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs a level 4 reboot, loading the system translations from the translation cards. Rebooting takes about 10 minutes.
4. After all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Test the Packet Bus and C-LAN Circuit Pack

1. Type **test packet port-network 1 long** and press Enter. For more detail about these tests, refer to the test pkt command section in the maintenance book.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to perform the steps in this section.
2. To use Access Security Gateway (ASG), see [Appendix D, "Access Security Gateway"](#).
3. Type **change system-parameters customer-options** and press Enter. Use these forms to verify the customer options are properly set.



NOTE:

If the customer was using Supplementary Services Protocol "b" or "d" on an ISDN-PRI trunk group before the upgrade, set the **Basic Call Setup** field on the QSIG Optional Features page to **y**.

4. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.



CAUTION:

If you do not enable Alarm Origination when the customer has purchased a services contract, the system cannot report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B/C Announcement circuit pack, type **restore announcements** and press Enter.
4. Update backup cards, if necessary.

High or Critical Reliability R8si System

Service Interruption

If no TN570 Expansion Interface circuit packs need to be installed for PktBus support, skip to and perform only the Install Circuit Packs section. This procedure does not interrupt service in this case.

Set Offer Category and Activate Offer

1. Type **change system-parameters offer** and press Enter.
2. Set the Offer Category field to **A**, if not already set.
3. Set the Activate Offer field to **y**.

Disable Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Set the Alarm Origination Activated to OSS Numbers field to **n**.



CAUTION:

If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.

3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter. If administered recorded announcements are listed, type **list configuration software-version long** and press Enter. To save the announcements, type **save announcements** and press Enter.

Power Down Cabinet (Standby Cabinet)

1. At the PPN, set the main circuit breaker to OFF.
2. At an EPN, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the appropriate circuit packs. See [Table 5-27](#).

Table 5-27. Circuit Pack Locations for Packet Bus in PPN

Circuit Pack	Carrier	Quantity	Slot
TN570	Control Carrier A	1 or 2 ¹	EXPN INTFC/1 and /2
	Control Carrier B	1 or 2	EXPN INTFC/1 and /2
TN771C	Control Carrier A	1 ²	Any Available Port Slot

1. Quantity of this pack should equal the number of EPNs.
2. Required for critical-reliability EPNs and PPN. Optional for digital trunk testing in high-reliability PPN.

Power Up System

1. At the EPN, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs a level 4 reboot, loading the system translations from the translation cards. Rebooting takes about 10 minutes.
4. After all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Test the Packet Bus and C-LAN Circuit Pack

1. Type **test packet port-network 1 long** and press Enter. For more detail about these tests, refer to the “test pkt command” section in the *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade. Call the regional CSA to perform the steps in this section.
2. To use Access Security Gateway (ASG), see [Appendix D, "Access Security Gateway"](#).
3. Type **change system-parameters customer-options** and press Enter. Use these forms to verify the customer options are properly set.



NOTE:

If the customer was using Supplementary Services Protocol "b" or "d" on an ISDN-PRI trunk group before the upgrade, set the **Basic Call Setup** field on the QSIG Optional Features page to **y**.

4. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.



CAUTION:

If you do not enable Alarm Origination when the customer has purchased a services contract, the system cannot report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B/C Announcement circuit pack, type **restore announcements** and press Enter.
4. Update backup cards, if necessary.

Add CallVisor ASAI

Service Interruption

1. If adding the packet bus support and TN570s must be installed as part of that support, then adding CallVisor ASAI requires a service interruption. Notify the customer in advance as to when the addition will take place. See [“Add Packet Bus Support to R8si” on page 5-87](#) for further information.

Enter Added Translations

1. On the System-Parameters Customer-Options form, disable the Calling Party Number/Billing Number (CPN/BN) option, and enable the CallVisor ASAI Interface option.
2. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*, for details on disabling and enabling these options.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.

Add Packet Bus Support

1. If packet bus support is not already installed, see [“Add Packet Bus Support to R8si” on page 5-87](#) and perform the steps.

Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install the appropriate circuit packs in assigned cabinet slot (as required).

EXAMPLE:	1	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

The TN748B (or later) or TN744/C/D Call Classifier circuit pack is required. The TN744 is required for those customers who desire switch call classification.

A vacant port is required on a TN556/B ISDN—BRI circuit pack.

Install Cables

1. Install cables from cabinet to the MDF as required.

Enter Added Translations

1. Administer the required translation data using the forms listed under “Adjunct/Switch Applications Interface (ASAI)” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. Update backup translation cards, if required.

Add ISDN—BRI

Service Interruption

1. If adding the packet bus support and TN570s must be installed as part of that support, adding ISDN—BRI requires a service interruption. Notify the customer in advance as to when the addition will be carried out. See [“Add Packet Bus Support to R8si” on page 5-87](#) for further information.

Add Packet Bus Support

1. If packet bus support is not already installed, see [“Add Packet Bus Support to R8si” on page 5-87](#) and perform the steps.

Add Circuit Packs

1. Determine port assignments of circuit packs to be added.
2. Install the appropriate circuit packs in assigned cabinet slot (as required).

EXAMPLE:	1	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

Required circuit packs:

- TN794 Network Control/Packet Interface (Net/Pkt) circuit pack
- TN556 *or* TN2198 ISDN BRI circuit pack.
- TN570/B/C Expansion Interface circuit pack (if EPN present)

Add the TN794 Packet Interface circuit pack first.

Install Cables

1. Install the cables from the cabinet to the MDF as required.



NOTE:

A TN556 ISDN BRI requires an 8-port backplane cable terminator (breakout connector); a TN2198 ISDN BRI requires a 12-port backplane cable terminator. Connect the 25-pair cable to the appropriate terminator.

Enter Added Translations

1. Administer the required translation data using the forms listed under 7500D voice terminals and 8500 voice terminals in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B/C Announcement circuit pack, type **list configuration software-version** and press Enter. To restore these announcements, type **restore announcements** and press Enter.
4. Update backup cards, if required.

Add IP Interface Assembly

DEFINITY ECS IP Solutions allows you to send voice and fax from the DEFINITY ECS through an Internet protocol (IP) network to other DEFINITY ECSs having this feature or to other H.323 V2 compliant endpoints. It is implemented using the TN802/B IP Interface, which is a Windows NT server residing on the IP Interface Assembly inside the DEFINITY ECS.

The IP Interface is an assembly composed of a TN802B circuit board, a processor card, and DSP resource card. For ordering purposes, the assembly is identified as a J58890MA-1 L30, but for simplicity, we refer to it in this book as the TN802B IP Interface.

The TN802B IP Interface operates in two modes: IP Trunk, available with Release 7 or later, and Media Processor (MedPro), available with Release 8. The IP Trunk mode is Internet Telephone Server—Enterprise (ITS-E) compatible, and the MedPro mode is H.323 V2 compatible. The TN802B IP Interface is backwards compatible and defaults to IP Trunk mode. You must administer it to use it in MedPro mode.

For more information on the IP Interface capabilities and limitations, refer to the *DEFINITY Enterprise Communications Server Release 8 Overview*.

The following sections describe the process for

- [Installing in Media Processor Mode](#)
- [Installing in IP Trunk Mode](#)
- [Upgrading a TN802 V3 \(or later\) to a TN802B \(MedPro mode\)](#)



WARNING:

When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

Installing in Media Processor Mode

To operate in MedPro mode, you must install the TN802B IP Interface and, if the system does not have one, you must also install and administer a TN799B C-LAN circuit pack. For C-LAN administration, refer to *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

If you have existing TN802 IP Interface circuit packs, you can upgrade them either by replacing the circuit pack with a TN802B or by downloading the TN802B firmware onto the circuit packs (see [“Upgrade to TN802B \(R8\)” on page 5-126](#)).

Prepare for Installation

Have the following equipment on site before your shipment arrives:

- AC power outlets for the modem and monitor.
- Three unoccupied and adjoining port slots in the DEFINITY ECS for the TN802B IP Interface, if needed.

The TN802B occupies only one slot, but it needs the two slots to its left for clearance.
- An additional unoccupied port slot for the TN799B, if needed. If you have an existing TN799 circuit pack, replace it with the TN799B.
- A 10 BaseT or 10/100 BaseT Ethernet connection into your local area network for the TN802B.
- A 10 BaseT Ethernet connection into your local area network for the TN799B.
- Two or more valid, unused IP addresses on your network (one for MedPro and one for C-LAN) that can be assigned to the IP Interface server. You also need the subnet mask and default gateway.
- An analog telephone line reserved (DID is okay) for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

In addition if non-U.S. customer:

- Modem comparable to a U.S. Robotics Sportster Model USR 33.6 EXT.
- Cable from modem to TN802B external cable assembly.

We recommend that you protect your cabinet with an uninterruptible power system (UPS).

Check your Shipment

When your DEFINITY IP Trunk order arrives at your site, check the contents (see [Table 5-28](#)).

1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:

Table 5-28. Required Hardware

Comcode/Code	Description	Quantity
108525528	TN799B C-LAN circuit pack. One TN799B supports more than one TN802B.	1
J58890MA-1 L30	TN802B IP Interface Assembly	1 or more
601939804	H600-512,G1 external cable assembly	1 or more
	259A connector	1
	CAT5 or better cable	1
407633999	U.S. Robotics Sportster external modem, Model USR 33.6 EXT (U.S. customers only). Non-U.S. customers must provide a modem comparable to this model.	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only). Non-U.S. customers must provide a serial cable.	1

3. Read and follow any directions inserted into the package by the factory.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See [Figure 5-30](#). Look for the label where the bundle enters the amphenol connector.

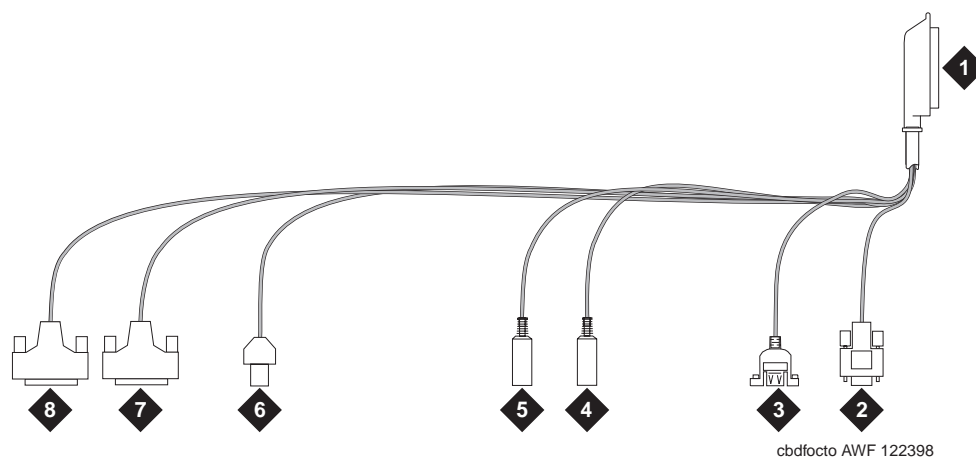


Figure Notes

- | | |
|---|-----------------------------------|
| 1. Amphenol connector to connector corresponding to TN802B slot | 5. To mouse |
| 2. To VGA monitor | 6. To ethernet |
| 3. To USB (not used) | 7. 25-pin male connector to modem |
| 4. To keyboard | 8. 25-pin male connector to COM2 |

Figure 5-30. TN802B IP Interface External Cable Assembly

Connect the Cables

1. Determine into which port slots you are putting the TN799B C-LAN and TN802B IP Interface circuit packs.



NOTE:

Make sure that at least 3 adjacent slots are free for the TN802B.

From the rear of the cabinet:

2. If adding a new TN799B, connect the 259A connector to the backplane connector corresponding to the TN799B slot.
3. If adding a new TN799B, connect one end of the DW8 cable to the 259A connector. Connect the other end to the customer's network.
4. Connect the amphenol connector on the external cable assembly to the backplane connector corresponding to the TN802B slot (the highest numbered connector of the 3 slots required)

Connect the Modem

⇒ NOTE:

These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

⇒ NOTE:

Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the left most analog-line port on the modem as shown in [Figure 5-31](#).
3. Make sure that the modem's DIP switches are set as shown in [Figure 5-31](#) and [Table 5-29](#).
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.

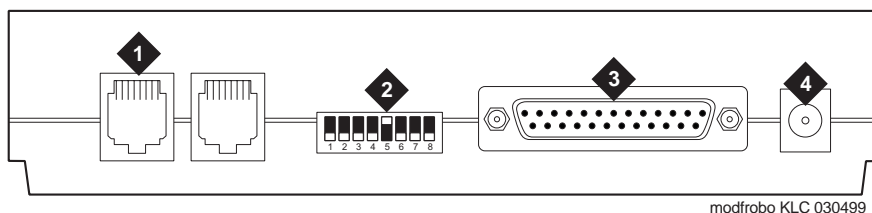


Figure Notes

- | | |
|------------------------------|----------------------------------|
| 1. Connect analog line here. | 3. Connect MODEM connector here. |
| 2. DIP switch 5 must be up. | 4. Connect power connector here. |

Figure 5-31. External Modem Connections for U.S. Robotics Modem

Table 5-29. U.S. Robotics Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	Data Terminal Ready normal Data Terminal Ready override
2	UP DOWN	Verbal result codes Numeric result codes
3	UP DOWN	Suppress result codes Display result codes
4	UP DOWN	Echo offline commands No echo, offline commands
5	UP DOWN	Auto answer on first ring or higher if specified in NVRAM Auto answer off
6	UP DOWN	Carrier detect normal Carrier detect override
7	UP DOWN	Load NVRAM defaults Load factory defaults
8	UP DOWN	Dumb mode Smart mode

Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.



NOTE:

You need a CAT5 or better cable for 100-Mbyte operation.

Install the Circuit Packs



CAUTION:

When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.



NOTE:

The TN799B and TN802B circuit packs are hot-swappable, so you do not need to power down the carrier to install them.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see [Figure 5-32](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT** *. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.

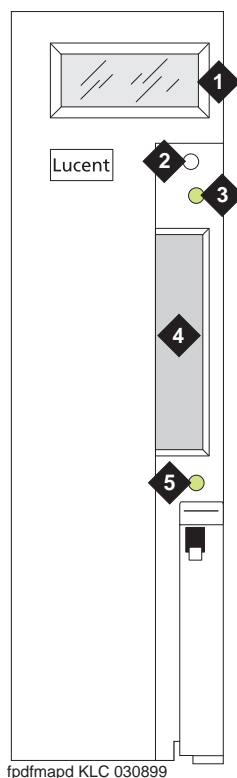


Figure Notes

- | | |
|----------------------------|----------------------------------|
| 1. LCD display | 4. PCMCIA card slot |
| 2. Reset button (recessed) | 5. Yellow PCMCIA disk-in-use LED |
| 3. Red board status LED | |

Figure 5-32. TN802B IP Interface faceplate

⇒ NOTE:

If replacing the existing TN799 circuit pack, remove it first and replace it with the new one.

1. Insert the TN799B circuit pack into the port slot identified earlier.

⇒ NOTE:

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

2. Insert the TN802B IP Interface into the right most of the three slots you reserved for it (see [Figure 5-33](#)) and seat it properly.

When you plug in the TN802B IP Interface Assembly, the circuit pack starts to boot and the LCD reads **PC Boot**. The circuit pack reboots automatically, and after about 3 to 4 minutes the LCD changes to **IPTRK***, the default mode, or **MEDPRO***.

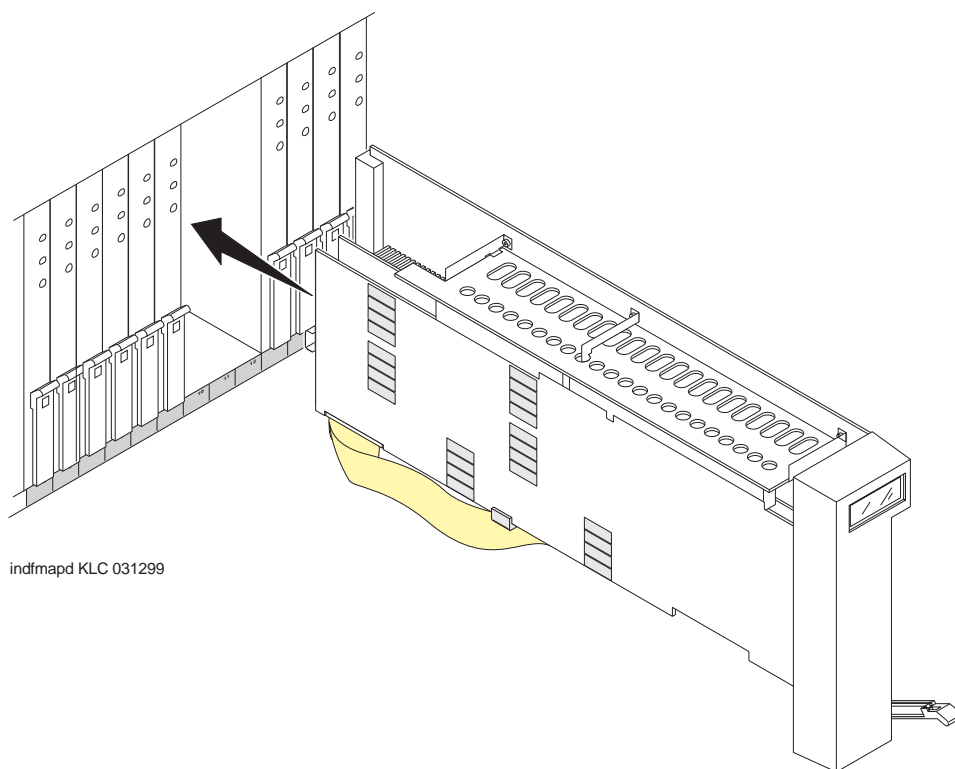
If the TN802B is pre-administered at the factory, it reboots several times to initialize to MedPro mode.

If the TN802B is not pre-administered, go to [“Administration Steps” on page 5-104](#)



NOTE:

For an initial installation, the TN802B IP Interface needs to be administered first (see [“Administer the IP Interface” on page 5-104](#)).



indfmapd KLC 031299

Figure 5-33. J58890MA-1 L30 IP Interface Assembly

Administer the TN799B C-LAN

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

Administer the IP Interface

Administration is usually done remotely; call your service representative to start the process.

Administration Steps



NOTE:

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity for Release 8* for specific information.

1. Log in as **craft**.
2. Type **change node-names** and press Enter.
3. On screen 2, type in the node name and IP address for the TN802B.

```
change node-names
```

```
Page 2 of 6
```

```
NODE NAMES
```

Name	IP Address	Name	IP Address
clan-a1	192.168.1 .31	.	.
clan-b1	192.168.2 .31	.	.
default	0 .0 .0 .0	.	.
med-a1	192.168.1 .81	.	.
	.	.	.
	.	.	.
	.	.	.

4. Type **change circuit-pack** and press Enter.
5. Check the Code column to see if the slots above the TN802B say DSMAPD or MEDPRO.

```

change circuit-packs                                     Page 1 of 5
                CIRCUIT PACKS

        Cabinet: 1                                     Carrier: A
                                                Carrier Type: processor

Slot Code  Sf Mode   Name                               Slot Code  Sf Mode   Name
01: TN754           DIGITAL LINE                               11: MEDPRO           RESERVED-IP
02: TN758           POOLED MODEM                               12: MEDPRO           RESERVED-IP
03: TN2144          ANALOG LINE                                  13: TN802 B          MAPD BOARD
04: TN746 B         ANALOG LINE                                  14:
05:                                                         15:
06: TN771 C         MAINTENANCE/TEST                            16:
07: TN464 F         DS1 INTERFACE
08: TN2140          E&M TIE TRUNK
09: TN767 E         DS1 INTERFACE
10: TN799 B         CONTROL-LAN

'#' indicates circuit pack conflict.
    
```

- If not, type MEDPRO in the slot just above TN802B slot and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

MedPro type requires TN802 with application. Type MEDPRO on circuit-packs form.

- Type **change ip-interfaces** and press Enter.
- Type in the information for the TN802B IP Interface,
- Set the Enabled field to **y**, and press Enter.



NOTE:

The customer provides the IP address, subnet mask, and gateway address.

At this time the TN802B LCD reads **PC BOOT ***, and about 3 to 4 minutes later reads **MEDPRO *** with the asterisk flashing

```
change ip-interfaces                                     Page 1 of 2

Network regions are interconnected? n
En-
abled Type      Slot Code Sfx Node Name          Subnet Mask      Bcast/Gway      Net
Addr Rgn
n C-LAN 01A09 TN799  clan-a1          255.255.255.0    192.168.1 .100 1
y MEDPRO 01A13 TN802  B med-a1          255.255.255.0    192.168.1 .21  1
n
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
n 255.255.255.0    . . .
```

Test the External Connection to the LAN

To test the external IP connections, ping the IP Interface server, and ping a known computer connected to your network. If everything is configured correctly, the Result column on the Ping Results screen reads **pass**. If it reads **abort**, verify the IP-address information and check the connectivity, including the cabling.

1. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the TN802B IP Interface and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.

```
ping ip-address 192.168.10.21

PING RESULTS

End-pt IP      Port      Port Type  Result  Time(ms)  Error Code
192.168.10.21  01A13    MEDPRO    PASS    10         1124
```

2. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the customer's gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.

3. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of another computer beyond the gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network.

Installing in IP Trunk Mode



NOTE:

IP Trunk mode should only be used to maintain compatibility with existing Release 7 IP Trunk or ITS-E installations. We strongly recommend that MedPro mode be used whenever possible.

Prepare for Installation

Have the following equipment on site before your shipment arrives:

- A mouse, keyboard, and VGA monitor for use during the installation of the server. You also need AC power outlets for the modem and monitor.
- Three adjoining, unoccupied port slots in the DEFINITY ECS
The TN802B IP Interface slides into only 1 slot, but its faceplate occupies 3 slots.
- A 10 BaseT or 10/100 BaseT Ethernet connection into the customer's local area network (LAN)
- A valid, unused IP address on the customer's LAN that can be assigned to the IP Interface server. You also need the subnet mask, default gateway, domain name, and so forth from the customer's network administrator.
- An analog telephone line reserved for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

If non-U.S. customer:

- Modem comparable to a U.S. Robotics, Inc. Sportster Model USR 33.6 EXT.
- A cable from the modem to the TN802B external cable assembly.

We recommend that you protect the cabinet where the IP Interface is installed with an uninterruptible power system (UPS).

Check your Shipment

When your DEFINITY IP Trunk order arrives at the customer's site, check the contents (see [Table 5-30](#)).

1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:

Table 5-30. Required Hardware

Comcode/Code	Description	Quantity
J58890MA-1 L30	TN802B IP Interface Assembly	1
601939804	H600-512,G1 external cable assembly	1
407633999	U.S. Robotics Sportster external modem, model number USR 33.6 EXT (U.S. customers only) ¹	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only) ²	1

1. For non-U.S. customers, you need a modem comparable to the U.S. Robotics Sportster and a serial cable.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See [Figure 5-34](#). Look for the label where the bundle enters the amphenol connector.

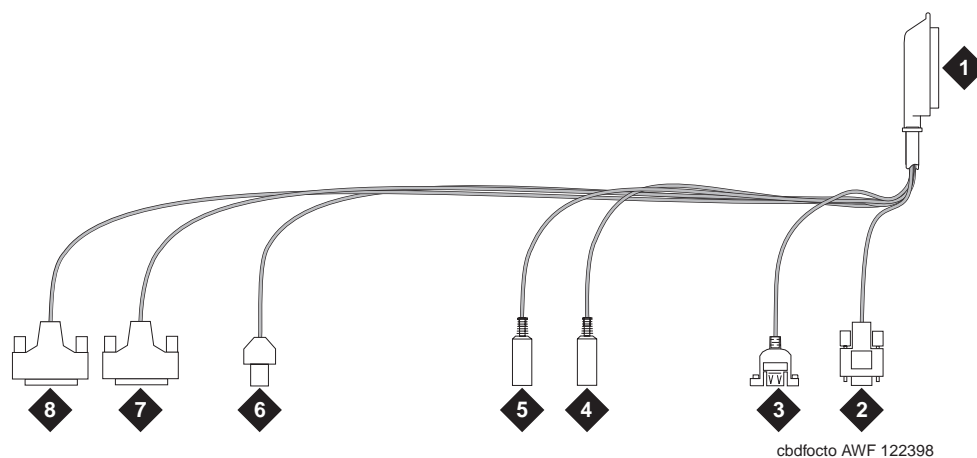


Figure Notes

- | | |
|---|-----------------------------------|
| 1. Amphenol connector to connector corresponding to TN802B slot | 5. To mouse |
| 2. To VGA monitor | 6. To ethernet |
| 3. To USB (not used) | 7. 25-pin male connector to modem |
| 4. To keyboard | 8. 25-pin male connector to COM2 |

Figure 5-34. TN802B IP Interface External Cable Assembly

3. Read and follow any directions inserted into the package by the factory.

Connect the Cables

1. Determine into which port slot you are putting the TN802B IP Interface.



NOTE:

Make sure that at least 3 adjoining slots are free.

2. From the rear of the cabinet, connect the amphenol connector on the external cable assembly to the backplane connector corresponding to that slot (the highest numbered connector of the 3 slots required).

Connect the Modem

⇒ NOTE:

These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

⇒ NOTE:

Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the leftmost analog-line port on the modem as shown in [Figure 5-35](#).
3. Make sure that the modem's DIP switches are set as shown in [Figure 5-35](#) and [Table 5-31](#).
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.

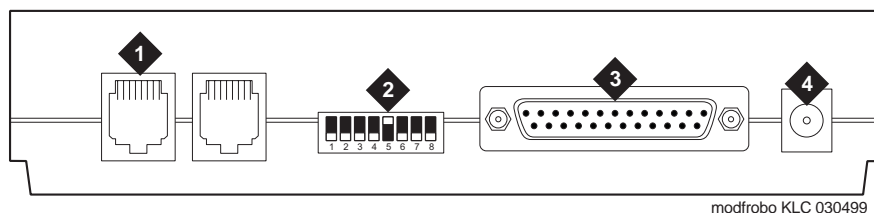


Figure Notes

1. Connect analog line here.
2. DIP switch 5 must be up.
3. Connect MODEM connector here.
4. Connect power connector here.

Figure 5-35. External Modem Connections for U.S. Robotics Sporster

Table 5-31. U.S. Robotics Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	Data Terminal Ready normal Data Terminal Ready override
2	UP DOWN	Verbal result codes Numeric result codes
3	UP DOWN	Suppress result codes Display result codes
4	UP DOWN	Echo offline commands No echo, offline commands
5	UP DOWN	Auto answer on first ring or higher if specified in NVRAM Auto answer off
6	UP DOWN	Carrier detect normal Carrier detect override
7	UP DOWN	Load NVRAM defaults Load factory defaults
8	UP DOWN	Dumb mode Smart mode

Connect the Monitor, Keyboard, and Mouse



NOTE:

Only make these connections if administered locally. Not necessary if administered remotely.

You must connect these before inserting the TN802B IP Interface.

1. Attach a VGA monitor to the VGA connector of the TN802B IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.

Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.



NOTE:

You need a CAT5 or better cable for 100-Mbyte operation.

Install the Circuit Pack



CAUTION:

When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.



NOTE:

The TN802B IP Interface is hot-swappable, so you do not need to power down the carrier to install it.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see [Figure 5-36](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT** *. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.

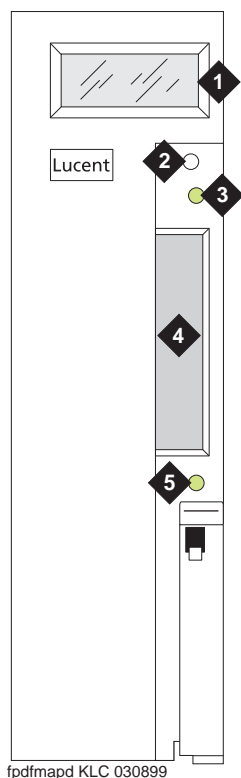


Figure Notes

- | | |
|----------------------------|----------------------------------|
| 1. LCD display | 4. PCMCIA card slot |
| 2. Reset button (recessed) | 5. Yellow PCMCIA disk-in-use LED |
| 3. Red board status LED | |

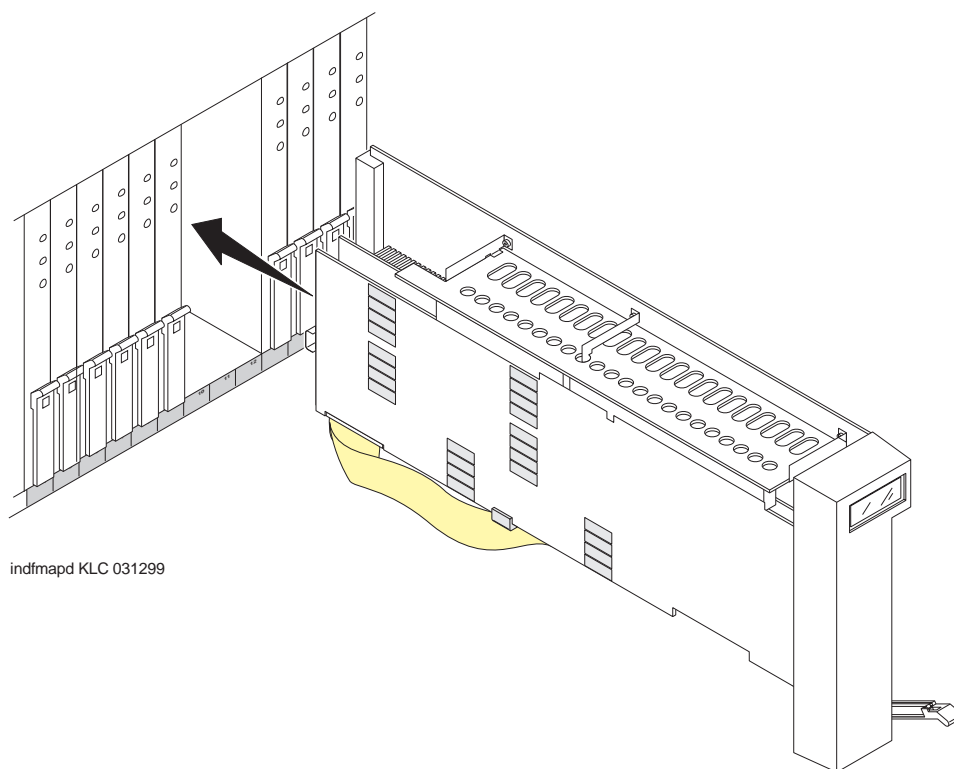
Figure 5-36. TN802B IP Interface faceplate

NOTE:

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

1. Insert the TN802B IP Interface into the rightmost of the three slots you reserved for it (see [Figure 5-37](#)).

When you plug in the TN802B IP Interface, the circuit pack starts to boot and the LCD reads **PC Boot** then after about 3 to 4 minutes it changes to **IP TRK ***, the default mode.



indfmapd KLC 031299

Figure 5-37. J58890MA-1 L30 IP Interface Assembly

Test the Modem

1. Check for dial tone.
2. Contact Lucent Technologies Customer Support and ask a representative to dial into your IP Interface server.

Administer the IP Interface

Administration is done either locally or remotely. If administered locally, proceed with the following administration steps on the attached keyboard, mouse, and monitor. If administered remotely, call your service representative to start the process.

Administration Steps

1. Log in as **craft**.
2. Type **change circuit-pack** and press Enter.
3. Check the Code column to see if the slots above the TN802B say DSMAPD or MEDPRO.

```
change circuit-packs                                Page 1 of 5
                CIRCUIT PACKS

      Cabinet: 1                                Carrier: A
                                                Carrier Type: processor

Slot Code  Sf Mode  Name                                Slot Code  Sf Mode  Name
01: TN754          DIGITAL LINE                                11:  DSMAPD          RESERVED-IP
02: TN758          POOLED MODEM                               12:  DSMAPD          RESERVED-IP
03: TN2144         ANALOG LINE                                13:  TN802  B          MAPD BOARD
04: TN746  B       ANALOG LINE                                14:
05:                                                         15:
06: TN771  C       MAINTENANCE/TEST                       16:
07: TN464  F       DS1 INTERFACE
08: TN2140         E&M TIE TRUNK
09: TN767  E       DS1 INTERFACE
10: TN799  B       CONTROL-LAN

'#' indicates circuit pack conflict.
```

4. If MEDPRO, go to the entry just above the TN802B that says MEDPRO.
5. Type DSMAPD, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

```
MedPro type requires TN802 with application. Type
MEDPRO on circuit-packs form.
```

Log onto the TN802B Interface Server

If administered remotely through pcANYWHERE:

1. Dial in to the server through pcANYWHERE using the dialup number supplied.
2. Click on the pcANYWHERE Remote Host Computer button on the toolbar to send CTRL ALT DEL to the host.
3. Type **administrator** in the User Name field.
4. Type **iptrunk** in the Password field and click **OK**.
5. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

If administered locally on a monitor, keyboard, and mouse:

1. Press CTRL, ALT, and DEL simultaneously.
2. Type **administrator** in the `User Name` field.
3. Type **iptrunk** in the `Password` field and click **OK**.
4. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

A-Law versus Mu-Law

For systems using A-Law companding, an additional procedure is necessary.

On the SAT:

1. Busyout the trunk group associated with the IP trunk by typing **busyout board UUCSS** and pressing Enter.

In the Windows interface to TN802B:

1. Click on **Control Panel > Services**.
2. Highlight **IP Trunk Service**, then click on **Stop**.
3. In the lower left-hand corner, right-click Start > Explore.
4. Go to the c: drive and click on its, then bin.
5. Double-click on the its.ini file to open it in Notepad.
6. Under the [MediaLib] section, go to COMPANDING=MLAW. Change **MLAW** to **ALAW**.
7. Click on **File > Save** to save the file.
8. Click on **File > Exit** to exit Notepad.
9. Click on **Control Panel > Services**.
10. Highlight **IP Trunk Service**, then click on **Start**.



NOTE:

Do not select Startup.

After service has started, go to the SAT:

1. Release the trunk group associated with the IP trunk by typing **release board UUCSS** and pressing Enter.

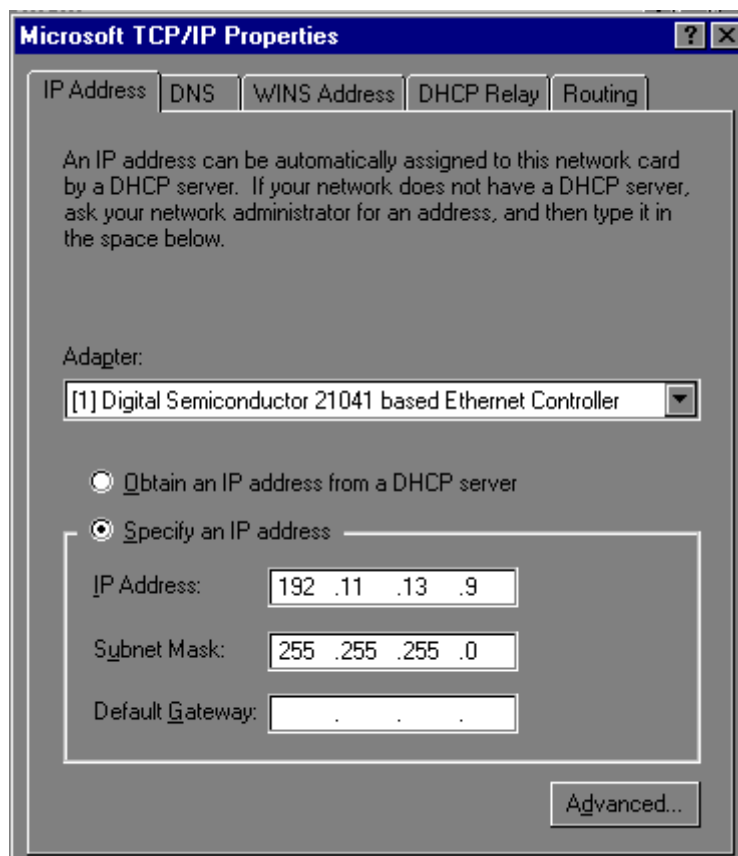
Assign Server and Domain Names

The Windows NT server identifies servers using a server name plus a domain name that locates the named server in a particular part of the network. The TN802B IP Interface is shipped with generic server and domain names. Assign replacement names that are meaningful within your network.

1. Click on **My Computer > Control Panel > Network**.
2. Select the **Identification** tab, then click **Change**.
3. Type the new server name in the `Computer Name` field.
4. Type the new domain name in the `Domain` field and click **OK > OK > Close**.
5. When prompted to reboot the computer, select one of the following options:
 - **No** if you have not assigned IP addresses then go to ["Assign an IP Address"](#)
 - **Yes** if you have assigned IP addresses.

Assign an IP Address

1. Click on **My Computer > Control Panel > Network**.
2. Click the **Protocols** tab.
3. Select **TCP/IP Protocol** from the list.
4. Click the **Properties** option in the Network window.



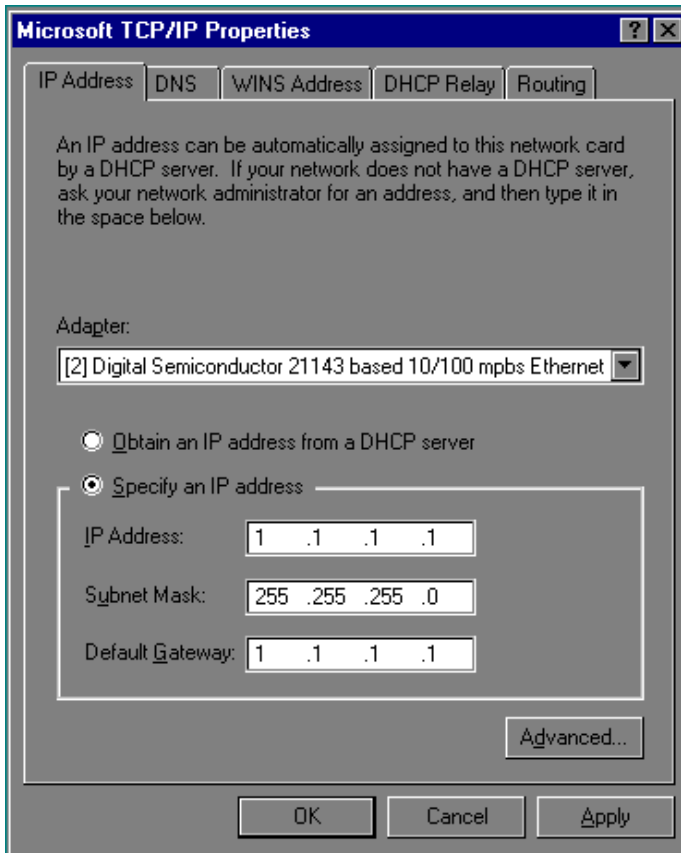
5. Verify that the Adapter drop down menu lists 2 DEC Ethernet adapters.



CAUTION:

Do not change any settings on the adapter labeled [1] for any reason.

6. Select the DEC Ethernet adapter labeled [2].

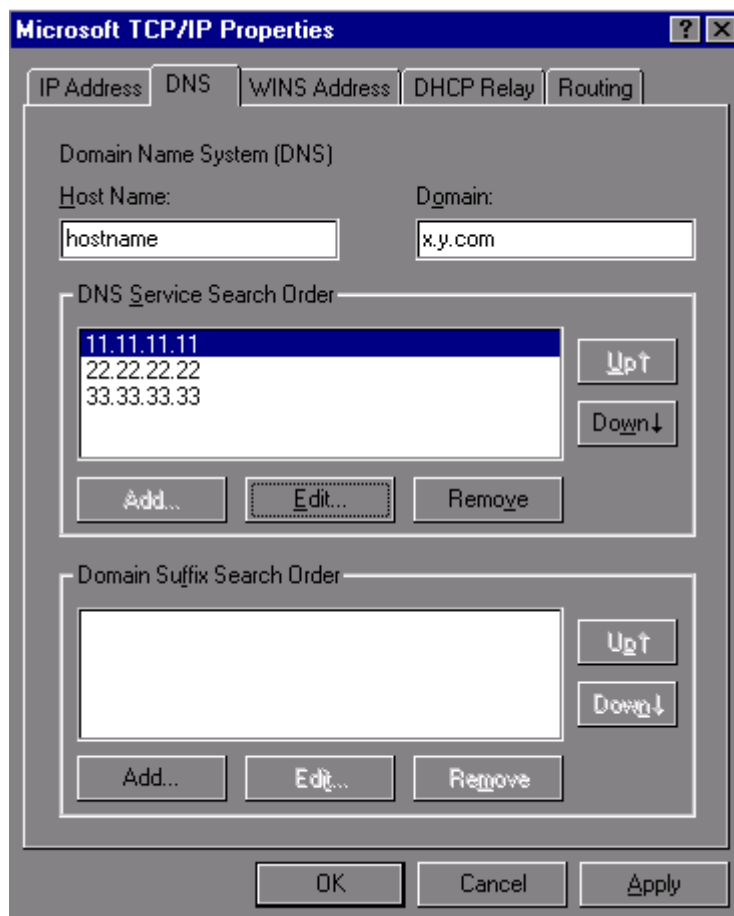


7. Type a valid IP address for the IP Interface server in the IP Address : field.
8. Type the appropriate subnet mask in the Subnet Mask : field.

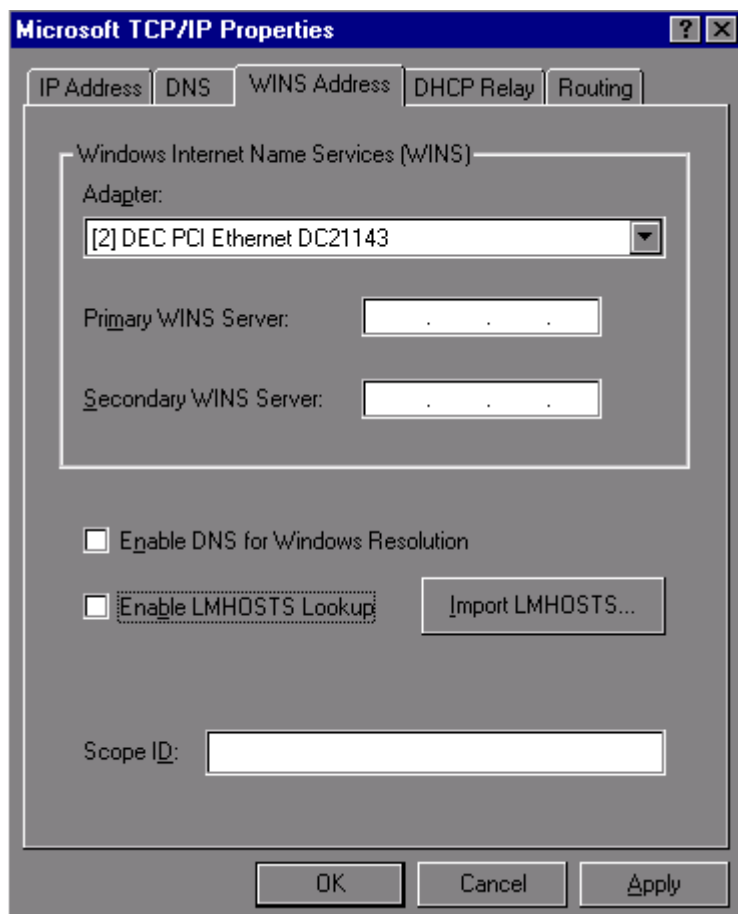
⇒ NOTE:

Not all networks require steps 9 through 18. Check with the local network administrator to determine which are required.

9. If you use gateways, type the IP address of the default gateway for the IP Interface server in the Default Gateway : field.
10. Click on the DNS tab and verify that the domain DNS server is correct.



11. Type domain name in the Domain field.
12. If using DNS, click Add under the DNS Service Search Order field and type its IP address.
13. Click on the WINS Address tab.



14. Make sure the [2] DEC shows in the Adapter field.
15. If WINS server is available, type its IP address in the Primary WINS Server field.
16. If DNS is available, select Enable DNS for Windows Resolution.
17. If the network uses an imported LMHOSTS file, select Enable LMHOSTS Lookup and Import LMHOSTS and click **OK**.
18. If the following dialog box opens, click **Yes**:

At least one of the adapter cards has an empty primary WINS address. Do you want to continue?
19. Click the **Bindings** tab to effect the changes.

NetBIOS Interface, Server, and Workstation should now be enabled. If any are disabled (a red circle with a line through it), review the previous network-configuration steps for omissions or errors.
20. Click **Close**.

If administered remotely through pcANYWHERE:

21. Click on the pcANYWHERE Restart Host Computer button on the toolbar to restart the computer.

If administered locally on a monitor, keyboard, and mouse:

21. Click **Yes** in the dialog box to restart the computer.



WARNING:

When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

Check Network Services

When the server restarts, make sure that the required network services have started correctly. If you see an error dialog box, then the network services did not start correctly. Also, check the NT Event Log.

1. Click on **My Computer > Control Panel > Network > Services**. Make sure that the following services are listed:
 - Computer Browser
 - Microsoft Internet Information Server 2.0
 - NetBIOS Interface
 - RPC Configuration
 - Server
 - Workstation
2. Click the **Protocols** tab, and examine the Network Protocols. TCP/IP protocol should be the only one listed.
3. Click **OK**.

Test the External Connection to the LAN

To test the external IP connections, ping the IP Interface server and ping a known computer connected to your network.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping nnn.nnn.nnn.nnn** (which is your IP address).
 - If everything is configured correctly, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
 - If no response, verify the IP-address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping nnn.nnn.nnn.nnn** (which is the IP address of your gateway).
 - If everything is configured correctly, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
 - If no response, verify the IP address information and check the connectivity, including the cabling.
 - If all else fails, click on **Start > Settings > Control Panel > Network**. Select the **Adapters** tab and highlight the [2] DEC adapter.
 - Click **Properties > Change**.
 - From the Duplex Mode dropdown menu, select a setting that matches the switch/hub that the TN802B connects to. For example, 10BaseT Full Duplex or 10BaseT No Link Test
4. At the command prompt, type **ping nnn.nnn.nnn.nnn** (which is the IP address of another external computer beyond the gateway).
 - If you have connectivity, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
 - If no response, verify the IP address information and check the connectivity, including the cabling. Consult your IP network administrator.
5. Type **exit** and press Enter.

Test the IP Interface Onboard LAN Connections

To test the onboard LAN connections, ping the IP Interface server and the processor on the TN802B IP Interface.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping 192.11.13.9** (which is the IP address of the internal IP Interface server).
 - If everything is configured correctly, the system responds with the following message:

```
Reply from 192.11.13.9: bytes=32 time<##ms TTL=###
```
 - If no response, verify the IP address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping 192.11.13.8** (which is the IP address of the internal processor).
 - If you have connectivity, the system responds with the following message:

```
Reply from 192.11.13.8: bytes=32 time<##ms TTL=###
```
 - If no response, verify the IP settings for Adapter [1].
4. Type **exit** and press Enter.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network. You can now use the Configuration Manager software (preinstalled on the TN802B hard disk) and DEFINITY ECS switch administration to administer connections to other IP Trunk and ITS-E equipment.

Upgrading a TN802 V3 (or later) to a TN802B (MedPro mode)

If you have a TN802 V3 (or later) IP Interface, you must either replace it with a TN802B circuit pack or upgrade the existing TN802 circuit pack to operate in MedPro mode. Also, to operate in the MedPro mode, the DEFINITY ECS switch must be Release 8 or later.

NOTE:

The TN802 IP Interface must be V3 or later to upgrade to TN802B.

To upgrade the TN802 to a TN802B, you need the following hardware:

- Monitor, keyboard, and mouse to access the IP Interface's Windows NT environment or pcANYWHERE software.
- 10-Mbyte SanDisk PCMCIA flashcard loaded with the MedPro NT Application Install Wizard
- TN802B label

The upgrade adds or modifies the following directories or files on your computer's hard drive:

- c:\dolan*
- c:\mapd\dnld\medpro.img
- c:\mapd\dnld\tmp.img

Connect the Monitor, Keyboard, and Mouse

1. Attach a VGA monitor to the VGA connector of the TN802 IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.
5. If upgrading locally, reboot Windows NT by pressing the recessed reset button on the faceplate (see [Figure 5-36](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.
6. After the TN802B is shut down, reseal the circuit pack to restart the system.
7. Log in using **ctrl alt del**

Upgrading IP trunks (R7) to H.323 trunks

If there are existing IP trunk connections that you want to upgrade to H.323 trunk connections, do the following steps. Otherwise, go to ["Upgrade to TN802B \(R8\)" on page 5-126](#)

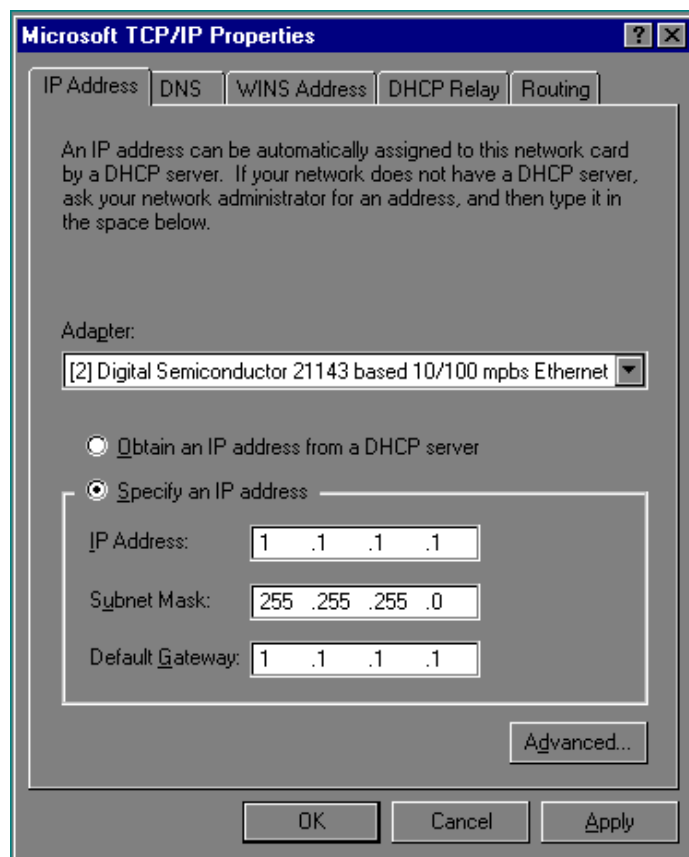
To upgrade an existing IP trunk (R7) to an H.323 trunk (R8) requires first getting IP information from the existing TN802 before upgrading the TN802 to TN802B.

1. Click on **My Computer > Control Panel > Network**.
2. Click the **Protocols** tab.
3. Select **TCP/IP Protocol** from the list.
4. Click the **Properties** option in the Network window. Write down the IP address, subnet address, and gateway address shown for adaptor [2] (see example below).



NOTE:

Do not use the addresses for adapter [1].



5. When done, click **OK, OK**.

Upgrade to TN802B (R8)

⇒ NOTE:

The upgrade takes about 20 minutes.

1. Insert the flash disk into the right most slot on the TN802 IP trunk. On the monitor, a dialog box assigns a drive letter with the removable media designation; the default is D:.
2. Right click on **Start > Explore** to open the Windows NT Exploring pane and select the drive letter indicated in step 1.
3. Double-click on **Medpro** and select the Setup icon.
4. Follow the Install Shield procedure to transfer all the necessary files to the TN802 IP Interface.

⇒ NOTE:

In the Finish dialog box, select **I will restart later**. Do not select **Restart computer**.

This would be a good time to read the Readme.txt file.

5. Click on **Start > Settings > Control Panel > Services**.
6. Select **IP Trunk** and click on **Startup**.



NOTE:

Do not click on Start.

7. Under Startup Type, select **Disabled** and click **OK** to disable IP Trunk mode.



NOTE:

If IP trunk and MedPro services are both set to automatic, the TN802B defaults to IP Trunk and MedPro features cannot be used.

8. Select **MedPro** and click on **Startup**.



NOTE:

Do not click on Start.

9. Under Startup Type, select **Automatic** and click **OK** to enable MedPro mode.
10. Click **Start > Shut Down** and select `Restart the computer?`

or on the TN802:

Press the recessed reset button on the faceplate (see [Figure 5-36](#)) until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), reseal the circuit pack to restart the system.

or on the SAT:

- a. Type **busyout board UUCSS** and press Enter .
- b. Type **reset board UUCSS** and press Enter.
- c. Type **release board UUCSS** and press Enter.

Once the system is completely initialized, the LCD reads **MEDPRO ***.



WARNING:

When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

11. Affix the new TN802B label to the circuit pack.
12. Disconnect the monitor, keyboard, and mouse.

Circuit Pack Verification

1. Type **change circuit-pack** and press Enter.
2. Check the Code column to see if it says DSMAPD or MedPro.

```
change circuit-packs                                     Page 1 of 5
                CIRCUIT PACKS

        Cabinet: 1                                Carrier: A
                                                Carrier Type: processor

Slot Code  Sf Mode  Name                                Slot Code  Sf Mode  Name
01: TN754          DIGITAL LINE                        11: MEDPRO          RESERVED-IP
02: TN758          POOLED MODEM                          12: MEDPRO          RESERVED-IP
03: TN2144         ANALOG LINE                                             13: TN802 B        MAPD BOARD
04: TN746 B        ANALOG LINE                                             14:
05:                                                         15:
06: TN771 C        MAINTENANCE/TEST                                       16:
07: TN464 F        DS1 INTERFACE
08: TN2140         E&M TIE TRUNK
09: TN767 E        DS1 INTERFACE
10: TN799 B        CONTROL-LAN

'#' indicates circuit pack conflict.
```

3. To correct it, go to the entry just above the TN802B that says DSMAPD.
4. Type MEDPRO, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

```
MedPro type requires TN802 with application. Type
MEDPRO on circuit-packs form.
```

5. To complete the administration, refer to the *DEFINITY ECS Release 8 Network Connectivity* book.

Installing an Integrated Channel Service Unit (ICSU) Module

The integrated channel service unit (ICSU) is a combination of a 120A CSU module integrated with a DS1 circuit pack. Use this device with the 700A DS1 loopback jack when testing the DS1 span.

Checking for required components

The integrated channel service unit (ICSU) package contains:

- 120A CSU module
- Cable H600-383
 - 4-pair modular cord
 - Group 2, 50-Foot (15.2 m) cable (standard)
- Cord DW8A-DE
 - 4-pair modular cord to alarm contacts
- DS1 circuit pack

The basic ICSU requires a TN474E or TN777D or later suffix. The enhanced integrated channel service unit requires a TN474F or TN777E or later suffix.

Installing the 120A CSU

See [Figure 5-38](#).

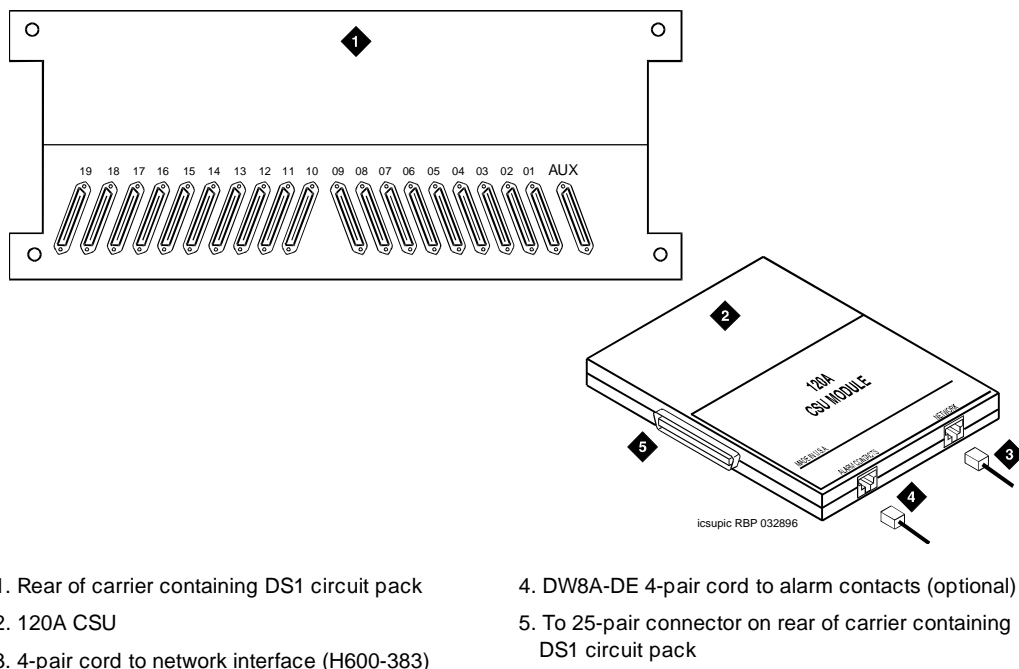


Figure 5-38. 120A Channel Service Unit Module



CAUTION:

Do not plug the 120A into any circuit pack other than a TN474F or TN777E or later release/vintage. Do not connect the 120A to any interface other than a network smart jack.

Be sure the DS1 circuit pack is set for 24-channel operation (1.544 Mbps). The 120A does not operate with the 32-channel interface. A switch on the circuit pack or administration sets this option.



CAUTION:

Always wear an anti-static wrist strap when installing a 120A module. Do not touch the external alarm cable when it is connected to the 120A. Static discharge can damage connector terminals and relays.

1. Unplug the DS1 circuit pack from its slot.
2. Install a 4C retainer in the 50-pin plug associated with the DS1 circuit pack slot.

5 Install and Wire Telephones and Other Equipment

Installing an Integrated Channel Service Unit (ICSU) Module

5-131

3. Plug the 120A's 25-pair connector directly into the plug associated with the DS1 circuit pack slot.
4. Secure the 4C retainer around the 120A.
5. Attach the supplied H600-383 cable to the 120A and to the network smart jack.

This cable is directional. To determine the end that connects to the 120A, perform a continuity test between pins 3 and 7. The end with this continuity is the 120A end. The shield is grounded only at the 120A end.

Use the cable provided. If cabling other than that provided with the 120A is used, observe the following guidelines:

- Use 24-gauge wire that provides individually shielded, twisted pairs for transmit and receive signals. Use the cable between the network interface and the 120A. Ground the shields of this cable only at the 120A end to avoid ground loops.
 - Cabling between the network interface and 120A can have no bridge taps.
 - If using standard house riser cable for connections between the network interface and the 120A, maintain a 100-pair separation between the receive and transmit twisted pairs.
 - If using standard house riser cable for connections between the network interface and the 120A, allow no more than 2 cross connects to 110-type cross connect blocks.
 - Never use quad cable (untwisted two pair telephone cable) in a DS1 line.
 - Avoid mixing wires of different gauges in a DS1 line.
6. If using external alarm equipment, attach the supplied DW8 cable to the 120A and the external equipment. The maximum length of this cable depends on the alarm equipment.
 7. If a TN474F is used, make sure the circuit pack is set for 24-channel operation. Set the switch on the circuit pack as shown in Figure 2-1.
 8. From the DS1 circuit-pack form of the system administration console, set the line compensation field to 0-133 feet (40.6 m).
 9. Reset the 120A by reseating the DS1 circuit pack.

When you reinsert the DS1 circuit pack after installing a 120A CSU the 120A resets. The DS1 circuit pack initializes and tests the 120A. When initialization and testing is complete, the green LED goes off. If the RED indicator is OFF after the test, the ICSU is working.

10. If the circuits do not pass the self test, troubleshoot the 120A as instructed in *Integrated CSU Module Installation and Operation*.

[Table 5-32](#) provides the H600-383 cable pinouts. [Table 5-33](#) provides the cable lengths for each cable group number.

Table 5-32. H600-383 cable Pin Assignments

Pin	Color	Channel Service Unit Designation	Network Designation	Function
1	BK	Line in 0	R1	RCV
2	Y	Line in 1	T1	
3	Shield			
4	R	Line out 0	R	XMT
5	G	Line out 1	T	
6	Shield			
7				Not assigned
8				Not assigned

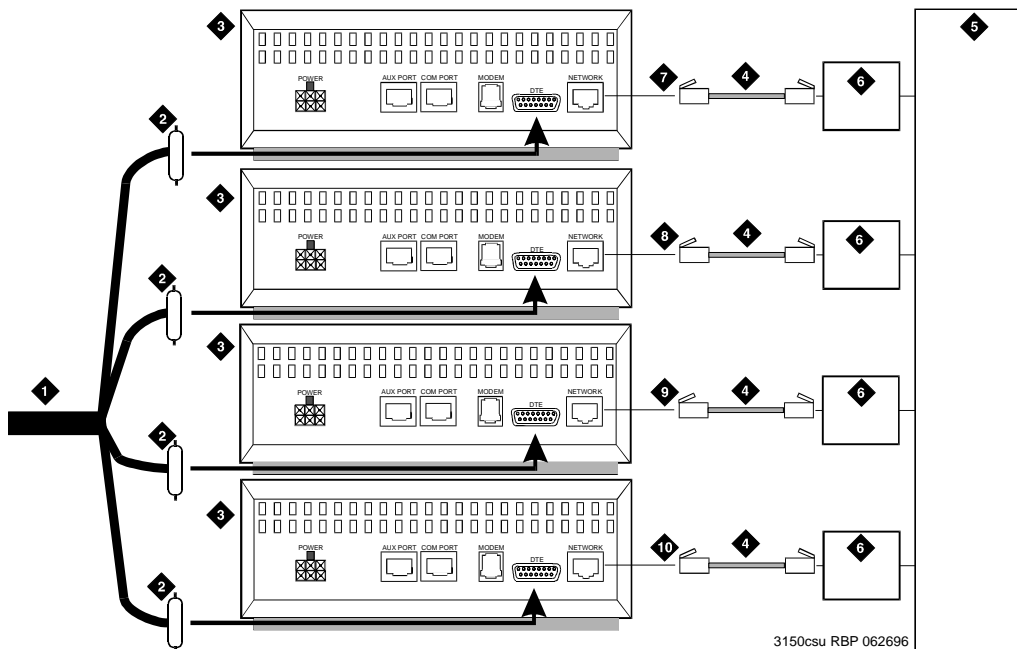
Table 5-33. H600-383 cable Lengths by Group Number

Group	Length	Group	Length
1	25 feet (7.7 m)	5	125 feet (38.1 m)
2	50 feet (15.2 m)	6	200 feet (71 m)
3	75 feet (22.9 m)	7	400 feet (122 m)
4	100 feet (30.5 m)	8	750 feet (198.1 m)

Installing a 3150/3170 Channel Service Unit

1. Install the CSU as shown in [Figure 5-39](#). For some installations (such as a DS1 converter), use a Y-cable to connect the DEFINITY System to the quad cable. [Figure 5-40](#) shows the Y-cable lengths. Be sure to label all cables.

[Figure 5-39](#) shows a typical connection from the H600-348 Quad cable to the CSU, through the H600-307 network cable, and to the network interface through the smart jacks. The quad cable provides up to four connections using a 15-pin connector that plugs into the DTE jack on each CSU. The H600-348 quad cable may require an adapter cable.



- | | | |
|---|-----------------------------|-------------|
| 1. H600-348 quad cable | 5. Network interface | 9. Cable C |
| 2. 15-pin male "D" connectors (to DTE jacks on CSU) | 6. Smart jack (if provided) | 10. Cable D |
| 3. Channel service unit (CSU) | 7. Cable A | |
| 4. H600-307 cable (RJ-48C to RJ-48C) | 8. Cable B | |

Figure 5-39. 3150/3170 Channel Service Unit Connections

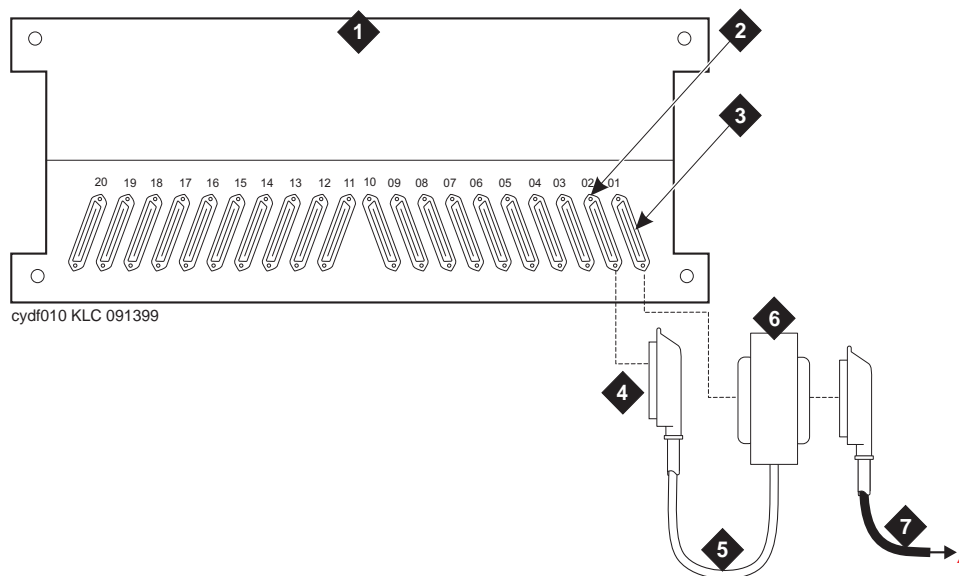


Figure Notes

- 1. Port carrier
- 2. Backplane connector for TN570C EI
- 3. Backplane connector for DS1 Converter
- 4. 50-pair female connector to EI connector
- 5. 14-in. (35.6 cm) Y cable
- 6. 50-pin male/50-pin female double-headed connector
- 7. H600-348 Quad Cable (with 50-pin male connector), which connects the Y cable to the 4 CSUs.

Figure 5-40. DS1 Converter Connections Using Double-Headed cable

Table 5-34. Y Cable Lengths

Length	Description	Comcode
14 in. (35.6 cm)	TN1654 circuit pack to adjacent EI circuit pack or TN573B SNI circuit pack in same carrier	847245750
70 in. (178 cm)	TN1654 circuit pack to EI circuit pack or SNI circuit pack in another carrier	847245768
14 in. (35.6 cm)	TN1654 circuit pack to fiber optic transceiver (DC-powered cabinets only). This cable is for intercabinet cabling only.	847245776

Connector and Cable Diagrams (Pinout Charts)

See [Table 5-35](#) for lead designations. The circuit packs and auxiliary equipment are classified as shown in Table 5-25.

Table 5-35. Lead and Color Designations

1	W-BL	26	102
2	BL-W	01	002
3	W-O	27	103
4	O-W	02	003
5	W-G	28	104
6	G-W	03	004
7	W-BR	29	105
8	BR-W	04	005
9	W-SL	30	106
10	SL-W	05	006
11	R-BL	31	107
12	BL-R	06	007
13	R-O	32	108
14	O-R	07	008
15	R-G	33	109
16	G-R	08	009
17	R-BR	34	110
18	BR-R	09	010
19	R-SL	35	111
20	SL-R	10	011
21	BK-BL	36	112
22	BL-BK	11	012
23	BK-O	37	113
24	O-BK	12	013
25	BK-G	38	302
26	G-BK	13	202

Continued on next page

Table 5-35. Lead and Color Designations — Continued

27	BK-BR	39	303
28	BR-BK	14	203
29	BK-SL	40	304
30	SL-BK	15	204
31	Y-BL	41	305
32	BL-Y	16	205
33	Y-O	42	306
34	O-Y	17	206
35	Y-G	43	307
36	G-Y	18	207
37	Y-BR	44	308
38	BR-Y	19	208
39	Y-SL	45	309
40	SL-Y	20	209
41	V-BL	46	310
42	BL-V	21	210
43	V-O	47	311
44	O-V	22	211
45	V-G	48	312
46	G-V	23	212
47	V-BR	49	313
48	BR-V	24	213
49	V-SL	50	300
50	SL-V	25	200

[Table 5-36](#) shows the pinouts for the TN799 CLAN circuit pack.

Table 5-36. TN799 Pinout

Backplane Pin	25-Pair Wire Color	Lead Name	Peripheral Connector Pin
103	White/Orange	TD+	27
003	Orange/White	TD-	2
104	White/Green	RD+	28
004	Green/White	RD-	3

[Table 5-37](#) shows the pinouts for the TN2185 ISDN-BRI 4-wire S Interface.

Table 5-37. TN2185 ISDN-BRI — 4-Wire S Interface Pinout

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	TXT.1	1	W-BL	26	102
	TXR.1	2	BL-W	01	002
	PXT.1	3	W-O	27	103
	PXR.1	4	O-W	02	003
2	TXT.2	5	W-G	28	104
	TXR.2	6	G-W	03	004
	PXT.2	7	W-BR	29	105
	PXR.2	8	BR-W	04	005
3	TXT.3	9	W-SL	30	106
	TXR.3	10	SL-W	05	006
	PXT.3	11	R-BL	31	107
	PXR.3	12	BL-R	06	007
4	TXT.4	13	R-O	32	108
	TXR.4	14	O-R	07	008
	PXT.4	15	R-G	33	109
	PXR.4	16	G-R	08	009
5	TXT.5	17	R-BR	34	110
	TXR.5	18	BR-R	09	010
	PXT.5	19	R-SL	35	111
	PXR.5	20	SL-R	10	011
6	TXT.6	21	BK-BL	36	112
	TXR.6	22	BL-BK	11	012
	PXT.6	23	BK-O	37	113
	PXR.6	24	O-BK	12	013
7	TXT.7	25	BK-G	38	302
	TXR.7	26	G-BK	13	202
	PXT.7	27	BK-BR	39	303
	PXR.7	28	BR-BK	14	203
8	TXT.8	29	BK-SL	40	304
	TXR.8	30	SL-BK	15	204
	PXT.8	31	Y-BL	41	305
	PXR.8	32	BL-Y	16	205

[Table 5-38](#) shows the pinouts for the TN2198 ISDN-BRI 2-wire U Interface.

Table 5-38. TN2198 ISDN-BRI — 2-Wire U Interface Pinout

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	T.1	1	W-BL	26	102
	R.1	2	BL-W	01	002
2	T.2	3	W-O	27	103
	R.2	4	O-W	02	003
3	T.3	5	W-G	28	104
	R.3	6	G-W	03	004
4	T.4	7	W-BR	29	105
	R.4	8	BR-W	04	005
5	T.5	9	W-SL	30	106
	R.5	10	SL-W	05	006
6	T.6	11	R-BL	31	107
	R.6	12	BL-R	06	007
7	T.7	13	R-O	32	108
	R.7	14	O-R	07	008
8	T.8	15	R-G	33	109
	R.8	16	G-R	08	009
9	T.9	17	R-BR	34	110
	R.9	18	BR-R	09	010
10	T.10	19	R-SL	35	111
	R.10	20	SL-R	10	011
11	T.11	21	BK-BL	36	112
	R.11	22	BL-BK	11	012
12	T.12	23	BK-O	37	113
	R.12	24	O-BK	12	013

* Pins 25 and 50 are grounded by the backplane.

[Table 5-39](#) shows the pinout for the TN793 24-Port Analog Line circuit pack.

Table 5-39. TN793 Analog Line Circuit Pack Pinout

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	T.1	1	W-BL	26	102
	R.1	2	BL-W	01	002
2	T.2	3	W-O	27	103
	R.2	4	O-W	02	003
3	T.3	5	W-G	28	104
	R.3	6	G-W	03	004
4	T.4	7	W-BR	29	105
	R.4	8	BR-W	04	005
5	T.5	9	W-SL	30	106
	R.5	10	SL-W	05	006
6	T.6	11	R-BL	31	107
	R.6	12	BL-R	06	007
7	T.7	13	R-O	32	108
	R.7	14	O-R	07	008
8	T.8	15	R-G	33	109
	R.8	16	G-R	08	009
9	T.9	17	R-BR	34	110
	R.9	18	BR-R	09	010
10	T.10	19	R-SL	35	111
	R.10	20	SL-R	10	011
11	T.11	21	BK-BL	36	112
	R.11	22	BL-BK	11	012
12	T.12	23	BK-O	37	113
	R.12	24	O-BK	12	013
13	T.13	25	BK-G	38	302
	R.13	26	G-BK	13	202
14	T.14	27	BK-BR	39	303

Continued on next page

Table 5-39. TN793 Analog Line Circuit Pack Pinout — *Continued*

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
	R.14	28	BR-BK	14	203
15	T.15	29	BK-SL	40	304
	R.15	30	SL-BK	15	204
16	T.16	31	Y-BL	41	305
	R.16	32	BL-Y	16	205
17	T.17	33	Y-O	42	306
	R.17	34	O-Y	17	206
18	T.18	35	Y-G	43	307
	R.18	36	G-Y	18	207
19	T.19	37	Y-BR	44	308
	R.19	38	BR-Y	19	208
20	T.20	39	Y-SL	45	309
	R.20	40	SL-Y	20	209
21	T.21	41	V-BL	46	310
	R.21	42	BL-V	21	210
22	T.22	43	V-O	47	311
	R.22	44	O-V	22	211
23	T.23	45	V-G	48	312
	R.23	46	G-V	23	212
24	T.24	47	V-BR	49	313
	R.24	48	BR-V	24	213

Table 5-40. DS1 Interface Cable H600-307 (and C6C)

50-Pin			15-Pin		
Pin	Color	Designation	Pin	Color	Designation
02	W-BL				
03	BL-W				
47	W-G	LI (High)	11	W-G	LI (High)
22	G-W	LI	03	G-W	LI
48	W-BR	LO	09	W-BR	LO
23	BR-W	LO (High)	01	BR	LO (High)
49	W-SL	LOOP2	06	W-SL	LOOP2
24	SL-W	LOOP1	05	SL-W	LOOP1

All other pins empty.

Table 5-41. Circuit Pack and Auxiliary Equipment Classifications

2-Wire Digital & Analog Line (8)	2-Wire Digital & Analog Line (16)	Data Line & Digital Line 4-Wire	2-Wire Digital & Analog Line (24)	Hybrid Line	MET Line	AUX Trunk	Central Office Trunk	Central Office Trunk 3-Wire	DID/ DIOD Trunk	Tie Trunk	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
TN467	TN2149	TN726B	TN2224	TN762	TN735	TN417	TN429	TN2199	TN429	TN478	TN483	TN566B	TN2198	TN553	TN21E
TN432	TN2135	TN754B	TN2214	TN762B		TN763	TN493		TN2139	TN458	TN722				
TN431	TN468B	TN564B	TN793			TN763D	TN422		TN459B	TN449	TN767				
TN411B	TN448	TN413	TN2793				TN421		TN436B	TN760 D	TN722B				
TN742	TN746		TN2214B				TN438B		TN753	TN760 C	TN2464				
TN769	TN746B		TN2224B				TN447		TN2146	TN434					
	TN2181		TN793B				TN465C		TN414	TN415					
	TN2183		TN2793B				TN747B								
	TN2215						TN2138								
	TN7921						TN2147C								
							TN2148								

1. DID means Direct Inward Dialing
2. DIOD means Direct Inward Outward Dialing
3. MET means Multibutton Electronic Telephone

5 Install and Wire Telephones and Other Equipment
 Connector and Cable Diagrams (Pinout Charts)

Table 5-42. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line & Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
W-BL	26	T1	T1		T1	V1T1	T1	T1	T1	A1	T1	T1		PXR1	T1	TXT1	T1
BL-W	01	R1	R1		R1	V1R1	R1	R1	R1	B1	R1	R1		PXT1	R1	TXR1	R1
W-O	27		T2	TXT1	T2	CT1	TXT1	SZ1				T11		TXT1	T2	PXT1	
O-W	02		R2	TXR1	R2	CR1	TXR1	SZ11				R11		TXR1	R2	PXR1	
W-G	28		T3	PXT1	T3	P-1	PXT1	S1				E1		PXR2	T3	TXT2	
G-W	03		R3	PXR1	R3	P+1	PXR1	S11		C1		M1		PXT2	R3	TXR2	
W-BR	29		T4		T4	V1T2	T2	T2	T2	A2	T2	T2		TXT2	T4	PXT2	T2
BR-W	04		R4		R4	V1R2	R2	R2	R2	B2	R2	R2		TXR2	R4	PXR2	R2
W-S	30			TXT2	T5	CT2	TXT2	SZ2				T12		PXR3	T5	TXT3	
S-W	05			TXR2	R5	CR2	TXR2	SZ12				R12		PXT3	R5	TXR3	
R-BL	31			PXT2	T6	P-2	PXT2	S2				E2		TXT3	T6	PXT3	
BL-R	06			PXR2	R6	P+2	PXR2	S12		C2		M2		TXR3	R6	PXR3	
R-O	32				T7	V1T3	T3	T3	T3	A3	T3	T3		PXR4	T7	TXT4	T3
O-R	07				R7	V1R3	R3	R3	R3	B3	R3	R3		PXT4	R7	TXR4	R3
R-G	33			TXT3	T8	CT3	TXT3	SZ3				T13		TXT4	T8	PXT4	
G-R	08			TXR3	R8	CR3	TXR3	SZ13				R13		TXR4	R8	PXR4	
R-BR	34			PXT3	T9	P-3	PXT3	S3				E3		PXR5	T9	TXT5	
BR-R	09			PXR3	R9	P+3	PXR3	S13		C3		M3		PXT5	R9	TXR5	
R-S	35				T10	V1T4	T4	T4	T4	A4	T4	T4		TXT5	T10	PXT5	T4
S-R	10				R10	V1R4	R4	R4	R4	B4	R4	R4		TXR5	R10	PXR5	R4
BK-BL	36			TXT4	T11	CT4	TXT4	SZ4				T14		PXR6	T11	TXT6	
BL-BK	11			TXR4	R11	CR4	TXR4	SZ14				R14		PXT6	R11	TXR6	

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5 Install and Wire Telephones and Other Equipment
 Connector and Cable Diagrams (Pinout Charts)

Table 5-42. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line & Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
BK-O	37		T8	PXT4	T12	P-4	PXT4	S4				E4		TXT6	T12	PXT6	
O-BK	12		R8	PXR4	R12	P+4	PXR4	S14				M4		TXR6	R12	PXR6	
BK-G	38	T5	T9		T13	V1T5			T5		T5			PXR7		TXT7	
G-BK	13	R5	R9		R13	V1R5			R5		R5			PXT7		TXR7	
BK-BR	39		T10	TXT5	T14	CT4								TXT7		PXT7	
BR-BK	14		R10	TXR5	R14	CR4								TXR7		PXR7	
BK-S	40	T11	T11	PXT5	T15	P-5								PXR8		TXT8	
S-BK	15	R11	R11	PXR5	R15	P+5								PXT8		TXR8	
Y-BL	41	T6	T12		T16	V1T6			T6		T6			TXT8		PXT8	
BL-Y	16	R6	R12		R16	V1R6			R6		R6			TXR8		PXR8	
Y-O	42			TXT6	T17	CT6								PXR9		TXT9	
O-Y	17			TXR6	R17	CR6								PXT9		TXR9	
Y-G	43			PXT6	T18	P-6								TXT9		PXT9	
G-Y	18			PXR6	R18	P+6								TXR9		PXR9	
Y-BR	44	T7			T19	V1T7			T7		T7			PXR10		TXT10	
BR-Y	19	R7			R19	V1R7			R7		R7			PXT10		TXR10	
Y-S	45			TXT7	T20	CT7								TXT10		PXT10	
S-Y	20			TXR7	R20	CR7								TXR10		PXR10	
V-BL	46		T13	PXT7	T21	P-7								PXR11		TXT11	
BL-V	21	R13		PXR7	R21	P+7								PXT11		TXR11	
V-O	47	T8	T14		T22	V1T8			T8		T8		LI*	TXT11		PXT11	
O-V	22	R8	R14		R22	V1R8			R8		R8		LI	TXR11		PXR11	
V-G	48		T15	TXT8	T23	CT8							LO	PXR12		TXT12	

Continued on next page

5 Install and Wire Telephones and Other Equipment
 Connector and Cable Diagrams (Pinout Charts)

Table 5-42. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line & Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
G-V	23		R15	TXR8	R23	CR8							LO*	PXT12		TXR12	
V-BR	49		T16	PXT8	T24	P-8							LBACK2	TXT12		PXT12	
BR-V	24		R16	PXR8	R24	P+8							LBACK1	TXR12		PXR12	
V-S	50																
S-V	25																

†The wire colors in this chart apply only to B25A and A25B cables. H600-307 cable colors are not shown.

The following abbreviations apply for all circuit packs unless otherwise noted:

- T, R PBX transmit voice T Tip (A) Green
- T1, R1 PBX receive voice R Ring (B) Red
- M PBX transmit signal S Sleeve
- E PBX receive signal PX PBX transmit
- TX Terminal transmit
- LI, LI* Digital Trunk IN LO, LO* Digital Trunk OUT

The following wire colors apply in the above chart:

- W White S Slate (Grey)
- BLBlue R Red
- O Orange BK Black
- G Green Y Yellow
- BRBrown V Violet

Test Telephones and Other Equipment

6

This chapter describes how to test the telephones and other equipment. The following tests must be performed:

1. Make test calls
2. Test 302C Attendant Console
3. Test Selector Console
4. Test External Ringing
5. Test Queue Warning Indicator
6. Test Integrated Announcement
7. Test Music-on-Hold
8. Test Emergency Transfer
9. Test Remote Access Interface (INADS)
10. Test Basic Rate Interface (BRI)

 **NOTE:**

The tests in this chapter are performed after the equipment has been wired to the system and after the customer's data for that equipment has been administered.

The following tests are acceptance tests or sanity tests and provide some assurance the system will perform properly after installation and administration. If problems occur or more extensive or specific tests are required, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Make Test Calls

Make two calls from one telephone to another telephone. Make the first call by dialing a telephone and make the second call by dialing a trunk access code and a Listed Directory Number (LDN).

Test 302C Attendant Console

Check all lamps are operational and call another telephone in the system.

1. Simultaneously press and hold the **Ringer Volume up button** and the **POS BUSY button**. This puts the console in the self-test mode.



NOTE:

Releasing the buttons causes the console to return to normal mode.

2. Verify all lamps on display light and remain lighted. Each row of lamps on the console lights and goes dark in sequence from top to bottom.

3. Press **Start**. Listen for dial tone.

The green lamp associated with idle call appearance button lights.

The **Position Available** lamp goes dark.

4. Dial number associated with a working telephone. Audible ringing tone is heard in ear piece.

5. Press **Release**. Audible ringing tone is silenced.

The green lamp associated with idle call appearance button goes dark.

The **Position Available** lamp lights.

Test Selector Console

Check all selector console lamps are operational. Make call to a telephone in the system.

1. Simultaneously press and hold the **Ringer Volume up button** and the **POS BUSY button**. This puts the console in the self-test mode.

2. Each row of lamps on the selector console lights and goes dark in sequence from top to bottom.

3. Press hundreds group select button. The hundreds group select lamp lights and any lamps associated with busy telephone light.

4. Press **Direct Extension Selection (DXS) button** for the desired extension. Audible ringing tone is heard in the earpiece on attendant console.

5. On attendant console, press **Release**. Audible ringing tone is silenced.

Test External Ringing

Make a test call to the attendant console to verify ringing device sounds when **Night** lamp on console is lighted. If ringing device has not been installed by customer, connect spare telephone to information outlet reserved for ringing device and make test call.

Test Queue Warning Indicator

Make a test call to an extension associated with a Uniform Call Distribution (UCD) or Direct Department Calling (DDC) group, and verify the queue warning indicator lamp lights. If the queue warning indicator has not been installed by customer, connect a spare telephone to the information outlet reserved for queue warning indicator and make a test call.

Test Integrated Announcement

The TN750C Announcement circuit pack stores messages. The messages can be recorded from telephones on- or off-premises and have flexible message lengths. The telephone selected as the test telephone must have a class of service (COS) with console permission enabled.

Record Announcement

1. Select test telephone with console permission enabled.
2. Dial access code followed by the integrated announcement extension number. Dial tone is heard.
3. Dial "1." A short burst of tone is heard and recording begins. Speak the announcement into the telephone.
4. Dial "#" or hang up. Recording stops and dial tone is heard.

Playback Announcement

1. Dial access code followed by the integrated announcement extension number. Dial tone is heard.
2. Dial "2." The announcement is heard and dial tone is heard at completion of announcement.

Delete Announcement

1. Dial access code followed by the integrated announcement extension number. Dial tone is heard.
2. Dial "3." A confirmation tone is heard and announcement is deleted.

Test Music-on-Hold

Verify music is provided to a held party during any hold interval.

Test Emergency Transfer

Put system in emergency transfer mode and make call using emergency transfer telephone. There may be up to 7 Emergency Transfer units, depending on the system configuration. The switch is located on the Processor circuit pack(s) in the Processor Port Network (PPN) control carrier.


Test Remote Access Interface

Test the communication link between the system and the remote interface (formerly INADS) and verify the alarm notification process. Make a remote test from the remote interface to the DEFINITY System and a local test from the DEFINITY System to the remote interface.

In some countries, this remote access interface is not allowed. Contact your Lucent Technologies representative.

Remote Test

1. Call outside personnel who will be accessing the system remotely to perform administration, maintenance, and testing.
2. Ask remote personnel to call system and login and display System Parameters Maintenance screen. The login must be successful.

 **NOTE:**

Product Identification on the System Parameters screen must match the Product Identification administered by the local technician.

3. Remote personnel enters **test inads-link** command, terminates login, and disconnects.
4. Remote personnel then check the appropriate trouble ticket. The trouble ticket should show "INADS,n,MINOR" in the description field to indicate a minor off-board alarm was reported to the remote personnel. There may be more text in the description field if other resolved alarms were reported.
5. Remote personnel makes second call and login to system and checks the error log to verify no problems. See *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*, for error log and error code information.
6. Remote access personnel terminate login and disconnects.

Local Test

1. Log in and enter **test inads-link** command.
2. Request remote access personnel to verify a trouble ticket was created.
3. Check error log to verify no problems.
4. Log off the system.

Test Basic Rate Interface

Check for normal voice telephone function (dial tone, ability to make and receive calls). Check for the correct Service Profile Identifier (SPID) on a display telephone and the management terminal.

Test C-LAN Board

Perform the following tests of the C-LAN board (Refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si* for test procedure details):

- **Control Channel Loop-Around Test** – This non-destructive test fails if the circuit pack does not return to a sane state after being reset. This test queries the circuit pack for its code and vintage, and verifies its records.
- **Packet Interface Test** – This non-destructive test checks the packet bus interface circuitry on the CLAN circuit pack. Test failure indicates faulty circuit pack.
- **Congestion Query Test** – This non-destructive test queries the number of used buffers to determine if the CLAN circuit pack is congested.

If:	Then:
Used buffers are, or are nearly, exhausted,	The test fails
The test fails,	The switch redirects outgoing calls to another available CLAN, and denies new incoming calls

Normal call handling resumes when the CLAN circuit pack has recovered from congestion.

- **Link Status Test** – This non-destructive test determines the state of the call control signaling link for Control LANs. If the signaling link is physically connected, the test sends a test frame over the link and checks for a response. The test passes only if both the signaling link is connected and the test frame is successfully transmitted.

A failure may indicate a problem with:

- This circuit pack
- The packet bus
- The packet interface circuit pack

Option Switch Settings



Some of the interface units used between the system and other types of equipment require specific option switch settings for each application. This section lists the settings required for data modules, modems, printers, and so forth. Refer to the user's guide for each type of equipment for information on how to locate and set the option switches.

Data Module Option Switch Settings

DCS Switch Settings

The Distributed Communications System (DCS) for a system is sometimes connected to the system through the TN790B Processor Interface circuit pack or a TN794 Network Control/Packet Interface (Net/Pkt) circuit pack. The first circuit can be connected directly to the DCS through the processor interface (PI) connector on the rear of the control carrier.

Any of the remaining three circuits on the processor interface used to support the Distributed Communications System (DCS) must be connected through a data module serving as the interface link. The option settings for a 7400A Data Module are shown in [Table A-1](#). Refer to [Figure A-1](#) for the location of the switches.

NOTE:

The options for the 7400A and 7400C Data Modules are set from the front panel interface. For the 7400A, refer to *7400A Data Module User's Manual*, 555-020-706. For the 7400C, refer to *DEFINITY Communications System High Speed Link User's Guide*, 555-020-711.

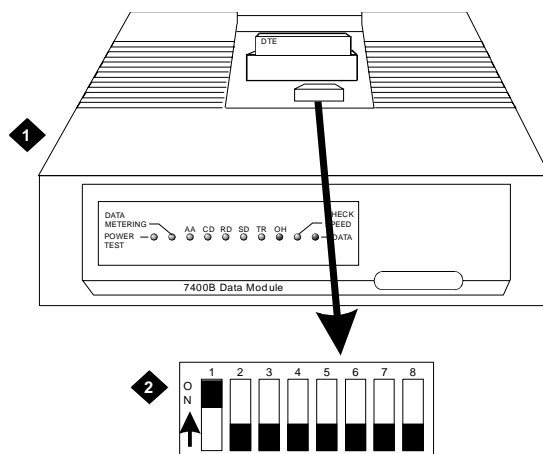


Figure Notes

- 1. Data Module (7400A Shown)
- 2. DIP Switch

Figure A-1. DIP Switch Locations

1. Remove the top cover from the data module. Refer to [Chapter 5, “Install and Wire Telephones and Other Equipment”](#).
2. Switches 1, 5, and 8 are the only switches to be set. Refer to [Table A-1](#) for the option switch settings.

Table A-1. Data Module Option Switch Settings

DIP Switch	Function	Setting
1	With Phone Without Phone	ON OFF
5	Data Metering No Data Metering	ON OFF
8	Make Busy on Loc Loop No Make Busy on Loc Loop	ON OFF
2, 3, 4, 6, and 7		OFF

7400D Data Module Option Settings

The option settings shown in [Table A-2](#) are for the Answer Only interface and are set from the front panel interface. Set only the desired speed of the 7400D. All other default settings can be used.

Refer to “Set 7400 D” Options on page B-4 to set the speed.

Table A-2. 7400 Series Data Module Options (Answer Only Interface)

Set Option Display	Abbreviation	Possible Values	Default
Set 300 SPEED?	300	ON, OFF	ON
Set 1200 SPEED?	1200	ON, OFF	ON
Set 2400 SPEED?	2400	ON, OFF	ON
Set 4800 SPEED?	4800	ON, OFF	ON
Set 9600 SPEED?	9600	ON, OFF	ON
Set 19200 SPEED?	19200	ON, OFF	ON
Set ANSWER?	ANS	AUTO, MANUAL	AUTO
Set CI LEAD?	CI	ON, OFF	OFF
Set CH LEAD?	CH	ON, OFF	OFF
Set CTS LEAD?	CTS	NORMAL, ON	ON
Set DCD LEAD?	DCD	NORMAL, ON	ON
Set DSR LEAD?	DSR	NORMAL, ON	ON
Set DTR DETECT?	DTR	0, 10, 20, 30, 50, 100 MSEC	50
Set DTR LEAD?	DTR	EIA STANDARD, IGNORE	EIA STANDARD
Set LL LEAD?	LL	ON, OFF	OFF
Set REMOTE LOOP?	REMLOOP	GRANT, DENY	GRANT
Set RI LEAD?	RI	CYCLE, ON	ON
Set RL LEAD?	RL	ON, OFF	OFF
Set SIGLS DISC?	SIGLS DISC	ON, OFF	ON
Set TIMING?	TIMING	INTERNAL, EXTERNAL	INT
Set TM LEAD?	TM	ON, OFF	OFF

⇒ NOTE:

It is recommended that CI and CH be set to ON, and DCD and DSR be set to normal. This allows login information to be displayed on the screen without having to send a carriage return character.

Set 7400D Options

The following steps are an example of how to change the default setting of 9600 to the custom setting of 19200.

NOTE:

If the link is between a Release 8r and a CMS, set the 7400D to 19200. If the link is between any other system and a CMS, leave the speed of the 7400D set at 9600.

1. From the HOME screen, press **NEXT/NO** until SET OPTIONS ? is displayed.
2. Press **ENTER/YES** to stay in the SET OPTIONS ? menu.
3. Press **NEXT/NO** until SET 9600 SPEED ? is displayed.
4. Press **ENTER/YES** when SET 9600 SPEED ? is displayed.
5. Press **NEXT/NO** when 9600 = ON ? is displayed.
6. Press **ENTER/YES** when 9600 -> OFF ? is displayed.
7. Press **ENTER/YES** when CONTINUE ? is displayed.
8. Press **ENTER/YES** when SET 19200 SPEED ? is displayed.
9. Press **NEXT/NO** when 19200 = OFF ? is displayed.
10. Press **ENTER/YES** when 19200 -> ON ? is displayed.
11. Press **NEXT/NO** when CONTINUE ? is displayed.
12. Press **ENTER/YES** when 19200 -> ON ? is displayed.
13. Press **ENTER/YES** when SAVE CHANGES ? is displayed.

NOTE:

The SET OPTIONS ? menu cannot be terminated if all speeds are set to off.

Add Pooled Modem

Modem Pooling supports 2 types of conversion resources: integrated and combined.

The integrated type requires a TN758 Pooled Modem circuit pack for each 2 conversion resources provided.

The combined type requires a port on a TN754B Digital Line circuit pack and a port on either an 8-port TN742, TN769; a 16-port TN746B; or a 24-port TN793/B, TN2793/B Analog Line circuit pack for each conversion resource provided.

The pooled modem requires a Lucent WP90110 **L7** power supply. Although an integrated conversion resource can use either the L5 or L7, the combined only works with an L7.



CAUTION:

The L5 and L7 power supplies look identical. Check the list number on the power supply before installing.

1. Determine the port assignment of the circuit packs to be added (if required).
2. Install the appropriate circuit packs in assigned carrier slot (if required).
3. For Paradyne 3800 Series modems:
 - a. Type **AT&F&D2&S4\D3S2=128x7V2S7=60S85=1** and press Enter.
 - b. Type **ATY0S10=100S78=2M0E0\N1&W** and press Enter.
4. For other types of modems, refer to the vendor's documentation.

Settings for Modem Connected to Data Module

1. Type **add data-module next** and press Enter.
2. Type **pdm** in the `Type` field.
3. Type **x** in the `Port` field.
4. Type **dte** in the `Connected to` field and press Enter.
5. Type **add station next** and press Enter.
6. Type **2500** in the `Type` field.
7. Type **x** in the `Port` field.
8. Type **n** in the `Tests` field and press Enter.
9. Type **add modem-pool next** and press Enter.
10. Type **combined** in the `Group Type` field.
11. Type **5** in the `Hold Time (min)` field.
12. Type **two-way** in the `Direction` field.
13. Type **9600** in the `Speed` field.
14. Type **Full** in the `Duplex` field.
15. Type **async** in the `Synchronization` field.
16. Type the port pair assignments in the `Analog` and `Digital` fields and press Enter.

Settings for Modem Connected to the Data Terminal Equipment (DTE)

1. Type **add station next** and press Enter.
2. Type **2500** in the `Type` field.
3. Type the port assignment in the `Port` field and press Enter.

7400A and 7400B Option Settings

Determine if the 7400A or 7400B will be interfacing with D-lead modems or attention control modems. Use [Table A-3](#) to interface with either modem. You can set options for the 7400B through a dumb terminal.

Table A-3. Options for D-Lead and Attention Control Modems

Set Option Display	Option	D-Lead Settings	Attention Control Settings
Set 300 Speed?	300	Note 1	Note 1
Set 1200 Speed?	1200	Note 1	Note 1
Set 2400 Speed?	2400	Note 1	Note 1
Set 4800 Speed?	4800	Note 1	Note 1
Set 9600 Speed?	9600	Note 1	Note 1
Set 19200 Speed?	19200	Note 1	Note 1
Set AT Control?	AT	OFF	ON
Set CI Lead?	CI	Note 2	Note 2
Set CI2 Lead?	CI2	Note 2	Note 2
Set CH Lead?	CH	Note 2	Note 2
Set CH2 Lead?	CH2	Note 2	Note 2
Set LL Lead?	LL	Note 2	Note 2
Set REMOTE Loop?	REMLOOP	Grant	Grant
Set RL Lead?	RL	Note 2	Note 2
Set SIGLS Disc?	SIGLS DISC	ON	ON
Set TM Lead?	TM	Note 2	Note 2

⇒ NOTE:

1. Set speed to match remote modem. At least one speed must be set ON.

⇒ NOTE:

2. Set to match remote modem.

Printer Option Settings

Printers can be used with a management terminal as journal printers for the hospitality feature and also as an output device for Call Detail Recording (CDR).

A 572 printer can function as a CDR device, system printer, or journal printer. The options are set with function keys rather than DIP switches. [Figure A-2](#) shows the arrangement of the function keys on the printer control panel.

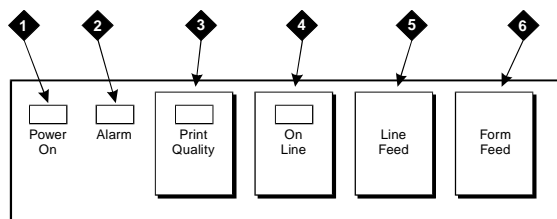


Figure Notes

- | | |
|-------------------------|---------------------|
| 1. Power On Button | 4. On Line Button |
| 2. Alarm Button | 5. Line Feed Button |
| 3. Print Quality Button | 6. Form Feed Button |

Figure A-2. Control Panel for 572 Printer

1. Load the printer with paper and turn the power off (Callout 1).
2. Simultaneously press and hold the **Print Quality** and **On Line** buttons. Press the **Power On** button. Release all three buttons. The printer is now in set-up mode and it prints current settings:

If the printer is used with a management terminal, CDR, or as a Journal printer, set the options as shown in [Table A-4](#). If the printer is used as the system printer, set the options as shown in [Table A-5](#).

3. Use **Line Feed** or **Form Feed** to step through the options for the function.
4. Press **On Line**. This activates the menu for the function. Use **Line Feed** and **Form Feed** to step through the options for the function.
5. When a desired option is located, press **Print Quality**. Each time an option is set, the setting is printed. Repeat for each option to be set.
6. When finished, press **Print Quality**. The printer changes to normal mode.

Table A-4. 572 Printer Used with Management Terminal

Function	Function Name	Menu	Menu Status
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1" SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS (matches connected device)	01	9600

Table A-5. 572 Printer used as System Printer

Function	Function Name	Menu	Menu Status
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1" SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	04	1200

Call Detail Recording Option Settings

The interface between the system and Call Detail Recording (CDR) equipment may be one of the following:

- Data Module — Recommended option settings are shown in [Table A-3](#).
- Modem — Recommended option settings are in modem vendor document
- TN726 Data Line circuit pack and an Asynchronous Data Unit — Data modules or modems are not required.
- Connected directly to the **DCE** connector (Electronic Industries Association (EIA) Port) located on the rear of the Control Carrier — data modules or modems are not required.

A 572 Printer can be used as an output receiving device for Call Detail Recording (CDR). The recommended option settings for this printer are shown in the following tables. Also, a TELESEER, Call Detail Recording (CDR), 94A Local Storage Unit (LSU), or Customer Premises Equipment (CPE) can be used as the output receiving device.

Administration procedures for Call Detail Recording (CDR) equipment are provided in *DEFINITY Enterprise Communications Server Release 8 Administration and Feature Description*.

AUDIX Interface Option Settings

The Audio Information Exchange (AUDIX) is sometimes connected to the system through the TN765 Processor Interface circuit pack. The first circuit on the processor interface can be connected directly to the AUDIX through the **PI** connector on the rear of the control carrier.

Any of the remaining three circuits on the processor interface to be used to support AUDIX must be connected through a 7400D Data Module serving as the interface link for AUDIX. The option settings are shown in [Table A-6](#).

Table A-6. Data Module Settings for DEFINITY AUDIX

DIP Switch 1	Setting
9600	ON
SYNC	ON
INT	ON
AANS	ON
All Other Switches	OFF

TN760D Tie Trunk Circuit Pack Option Settings

The TN760D Tie Trunk circuit pack interfaces between the tie trunks and the Time Division Multiplex (TDM) bus. Two tip and ring pairs form a 4-wire analog transmission line. An E and M pair is used for signaling and are DC signaling leads used for call setup. The E lead receives signals from the tie trunk and the M lead transmits signals to the tie trunk.

To choose the preferred signaling format ([Table A-7](#) and [Table A-8](#)), set the switches on the TN760D and administer the port per [Figure A-3](#) and [Table A-9](#).



CAUTION:

To prevent damage from static electricity, wear an EMC wrist strap (comcode 900698226) when handling circuit packs or other components.

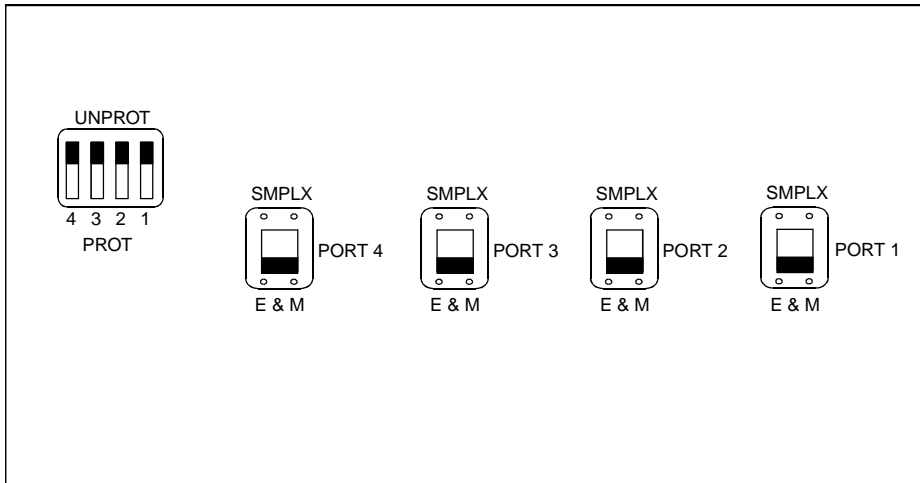
Table A-7. Signaling Formats for TN760D

Mode	Type
E & M	Type I Standard (unprotected)
E & M	Type I Compatible (unprotected)
Protected	Type I Compatible, Type I Standard
Simplex	Type V
E & M	Type V
E & M	Type V Revised

Table A-8. Signaling Type Summary

Signaling Type	Transmit (M-Lead)		Receive (E-Lead)	
	On-Hook	Off-Hook	On-Hook	Off-Hook
Type I Standard	grd	bat	open ¹ /bat	grd
Type I Compatible	open ¹ /bat	grd	grd	open ¹ /bat
Type V	open ¹ /bat	grd	open	grd
Type V Reversed	grd	open	grd	open

1. An open circuit is preferred instead of battery voltage.



r758183 RBP 050896

Figure A-3. TN760D Tie Trunk Circuit Pack (Component Side)

A Option Switch Settings

TN760D Tie Trunk Circuit Pack Option Settings

Table A-9. TN760D Option Switch Settings and Administration

Installation Situation		Preferred Signaling Format		Set E&M/SMPLX Option Switch	Set Prot/Unprot Option Switch	Administered Port
Circumstance	To	System	Far-End			
Co-Located	Sys75/G1	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Inter-Building	Sys75/G1	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Co-Located	Sys85/G2	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Inter-Building	Sys85/G2	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Co-Located	DIMENSION	E&M Type 1	E&M Type 1	E&M	Unprotected	Type 1
	PBX	Compatible	Standard			Compatible
Inter-Building	DIMENSION	Protected Type 1	Protected Type 1	E&M	Protected	Type 1
	PBX	Compatible	Standard			Compatible
Co-Located	Other	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Inter-Building	Other	Protected Type 1 Compatible	Protected Type 1 Standard Plus Protection Unit	E&M	Protected	Type 1 Compatible
Co-Located	Net Integrated	E&M Type 1 Standard	Any PBX	E&M	Unprotected	Type 1

TN464/2464 Option Settings

The TN464/2464 DS1/E1 Interface-T1/E1 circuit pack interfaces between a 24 or 32 channel CO/ISDN or tie trunk and the Time Division Multiplexing (TDM) bus.

Set the switches on the circuit pack to select bit rate and impedance match. See [Table A-10](#) and [Figure A-4](#).

Table A-10. Option Switch Settings on TN464/2464

120 Ohms	Twisted pair
75 Ohms	Coaxial requiring 888A adapter
32 Channel	2.048 Mbps
24 Channel	1.544 Mbps

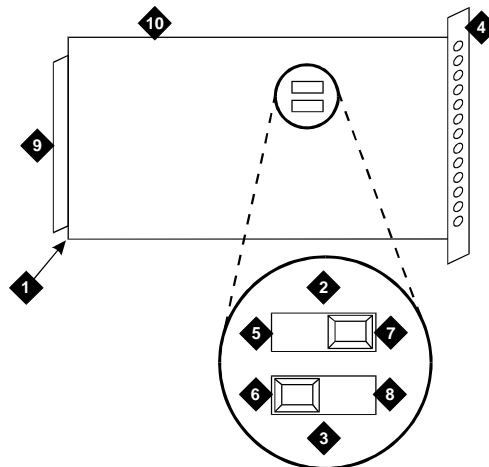


Figure Notes:

- | | |
|---------------------------|--------------------------------|
| 1. Backplane Connectors | 6. 120 ohm (shown selected) |
| 2. 24/32 Channel Selector | 7. 24 Channel (shown selected) |
| 3. 75/120 ohm Selector | 8. 75 ohm |
| 4. Faceplate | 9. Connector |
| 5. 32 Channel | 10. TN464/2464 |

A Option Switch Settings
TN464/2464 Option Settings

A-16

Connecting and Handling Fiber Optic Cables

B

Signals between the cabinets composing the system are carried by fiber optic cables. To accomplish this, the electronic signals at the connectors on the back of a cabinet must be converted into optical signals and optical signals from another cabinet must be converted back into electronic signals. Opto-electronic devices (lightwave transceivers) provide this interface.

LASER Product

The DEFINITY ECS may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote Expansion Port Network (EPN). The LASER device operates within the following parameters:

- Power Output: -5 dBm
- Wavelength: 1310 nm
- Mode Field Diameter: 8.8 μ m
- **CLASS 1 LASER PRODUCT**
- **IEC 825 1993**



CAUTION:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Contact your Lucent Technologies representative for more information.

Optical Cross-Connect Hardware

Optical cross-connects consist of Lightguide Interconnect Units (LIUs) with lightguide troughs in between them. [Figure B-1](#) shows a typical LIU. One LIU terminates the incoming cables and the other terminates the outgoing cables. A fiber optic patch cord or jumper is used to connect the circuits. Circuits can be rerouted the same as on 110-type connecting blocks, by moving the patch cord from one point on the Main Distribution Frame (MDF) to another.

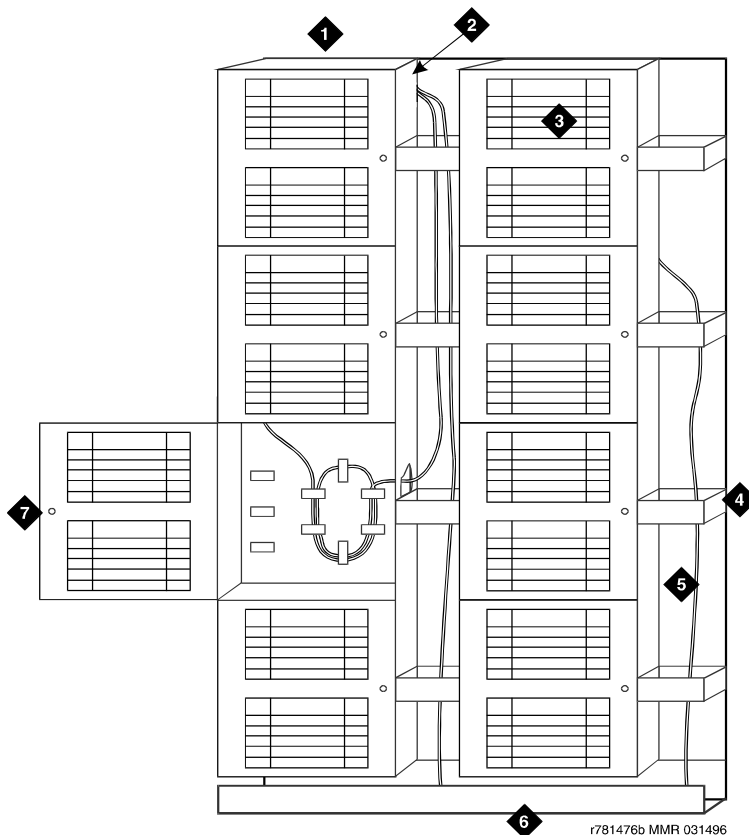


Figure Notes:

- | | |
|--|--|
| 1. 100A Lightguide Interconnect Unit (LIU) | 4. 1A4 Lightguide Trough |
| 2. Multi-Mode Connector (C2000A-2)
Single-Mode Connector (C3000A-2) | 5. Fiber Patch Cord |
| 3. Adhesive-Backed Circuit Labels | 6. 1A6 Lightguide Trough |
| | 7. Open Lightguide Interconnect Unit (LIU) |

Figure B-1. Typical Optical Lightguide Interconnect Unit

Optical interconnects consist of Lightguide Interconnect Units (LIUs) without a trough between them. [Figure B-2](#) shows a typical Interconnect field. Incoming and outgoing multi-mode and single-mode cables are connected directly to each other. This arrangement makes circuit changes more difficult, but reduces optical losses.

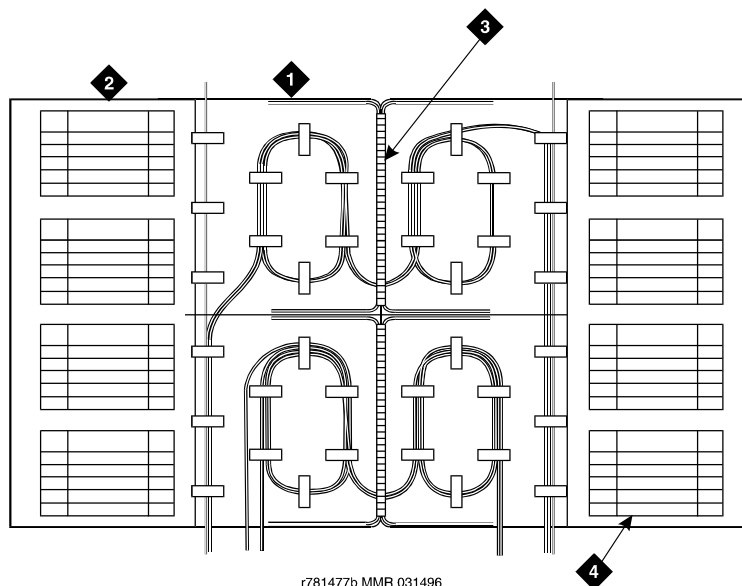


Figure Notes:

- | | |
|--|--|
| <p>1. 100A Lightguide Interconnect Unit (LIU)</p> <p>2. Open Lightguide Interconnect Unit (LIU) Door</p> | <p>3. C2000A-2 Connector (Multi-Mode)
 C3000A-2 Connector (Single-Mode)</p> <p>4. Labels</p> |
|--|--|

Figure B-2. Typical Optical Interconnect Field

Optical cross-connect and interconnect fields are made up of the following:

- 100A Lightguide Interconnect Unit (LIU)
- 10A Lightguide Connector Panel
- C2000A-2 Connector Coupling (Multi-Mode) or C3000A-2 Connector Coupling (Single-Mode)
- 1A4 Lightguide Trough
- 1A6 Lightguide Trough
- Multi-Mode or Single-Mode Fiber Interconnect Cable

100A Lightguide Interconnect Unit

The 100A Lightguide Interconnect Unit (LIU) (comcode 104141841) consists of a cabinet with retainer rings to hold slack fiber cables, mounting cutouts for two 10A lightguide connector panels, and a door with circuit labels on each side. See [Figure B-3](#).

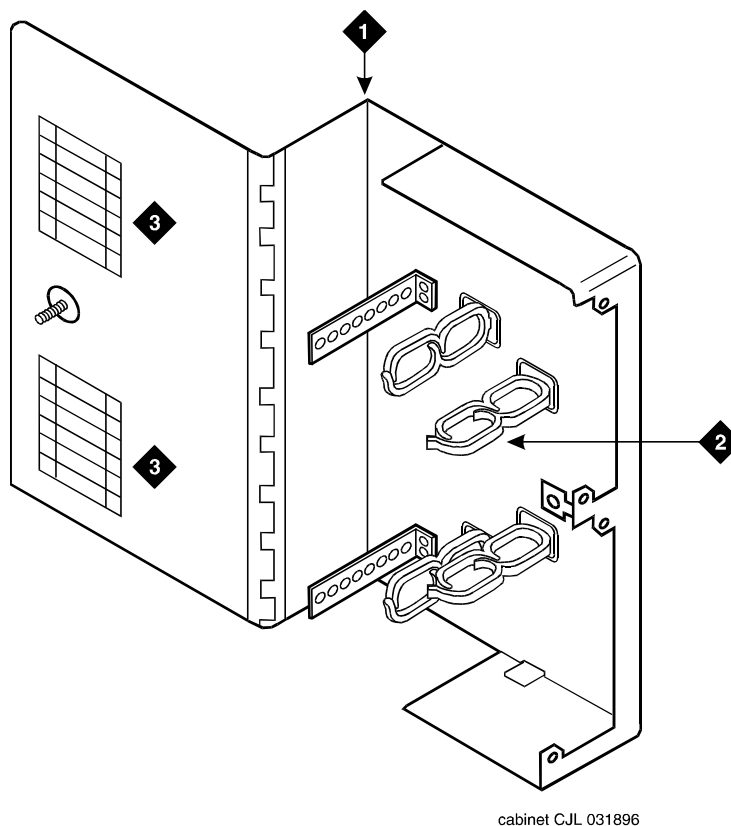


Figure Notes:

- | | |
|--|-------------------|
| 1. 100A Lightguide Interconnect Unit (LIU) | 2. Retainer Rings |
| | 3. Circuit Labels |

Figure B-3. 100A Lightguide Interconnection Unit

10A Lightguide Connector Panel

The 10A Lightguide Connector Panel (comcode 104141858) mounts in the cutouts of a 100A Lightguide Interconnect Unit (LIU). A Lightguide Interconnect Unit (LIU) contains two connector panels. Each connector panel can hold six C2000A-2 Connector Couplings.

The C2000A-2 Connector Coupling (comcode 104148028) is used to join multi-mode fiber optic cables equipped with ST connectors. It has a threaded midsection that allows it to be screwed into the 10A Lightguide Connector Panel.

The C3000A-2 Connector Coupling (comcode 105271142) is used to join single-mode fiber optic cables equipped with ST connectors. It has a threaded midsection that allows it to be screwed into the 10A Lightguide Connector Panel.

Lightguide Troughs

Two types of troughs are used with optical cross-connect hardware. The 1A4 trough secures single fiber optic jumpers routed between Lightguide Interconnect Unit (LIU) columns, and the 1A6 trough is used at the bottom of a Lightguide Interconnect Unit (LIU) column to prevent cable slack.

Ordering Information

Description	Comcode
1A4 Lightguide Trough	104141866
1A6 Lightguide Trough	104141874

Multi-mode Fiber Cable

The multi-mode fiber interconnection cables are used as patch cords and to connect fiber optic equipment to lightguide cross-connect and interconnect fields. This is a dual fiber cable equipped with ST connector plugs on each end.

[Table B-1](#) provides the available cable lengths and associated comcode numbers.

Table B-1. Multi-mode Fiber Cable Ordering Information

Description	Length	Comcode
Fiber Interconnection Cable	20 Feet (6.1 m)	407439975
Fiber Interconnection Cable	25 Feet (7.62 m)	407441427
Fiber Interconnection Cable	30 Feet (9.14 m)	407441435
Fiber Interconnection Cable	35 Feet (10.67 m)	407441443
Fiber Interconnection Cable	40 Feet (12.2 m)	407441450
Fiber Interconnection Cable	50 Feet (15.2 m)	407441468
Fiber Interconnection Cable	75 Feet (22.8 m)	407441476
Fiber Interconnection Cable	100 Feet (30.48 m)	407441484
Fiber Interconnection Cable	125 Feet (38.1 m)	407441492
Fiber Interconnection Cable	150 Feet (45.7 m)	407441500
Fiber Interconnection Cable	175 Feet (53.3 m)	407441518
Fiber Interconnection Cable	200 Feet (61 m)	407441666

Single-mode Fiber Cable

The single-mode fiber interconnection cables are used as patch cords and to connect fiber optic equipment to lightguide cross-connect and interconnect fields. This is a dual fiber cable equipped with ST connector plugs on each end.



NOTE:

5 and 10dB attenuators are available. Contact your Lucent Technologies representative for more information.

[Table B-2](#) provides the available cable lengths and associated comcode numbers.

Table B-2. Single-mode Fiber Cable Ordering Information

Description	Length	Comcode
Fiber Interconnection Cable	20 Feet (6.1 m)	407598325
Fiber Interconnection Cable	30 Feet (9.14 m)	407598333
Fiber Interconnection Cable	40 Feet (12.2 m)	407598341
Fiber Interconnection Cable	50 Feet (15.2 m)	407598358
Fiber Interconnection Cable	75 Feet (22.8 m)	407598366
Fiber Interconnection Cable	100 Feet (30.48 m)	407598374
Fiber Interconnection Cable	125 Feet (38.1 m)	407598390
Fiber Interconnection Cable	150 Feet (45.7 m)	407598408

Labels for Fiber Optic Cables

There are two types of labels used with fiber optic cables:

- Cable labels
- Cross-connect labels

Cable labels are used on the cables and cross-connect labels are used on the cross-connect equipment.

Cable Labels

Cable labels, with adhesive backing, are installed on each end of a fiber optic cable. Each label displays the following information:

- The numbers of the cabinets, carriers, and slots connected by the cable
- Information on the cable itself, such as cable comcode number, and how it is used

Cross-Connect Labels

The label used with cross-connect fiber optic cables shows the cabinet, carrier and slot numbers of the source of the cable. It also indicates that the cable goes to the Main Distribution Frame (MDF).

Cleaning Fiber Optic Cables

The use of isopropyl alcohol is recommended to properly clean fiber optic cables. Contact your Lucent Technologies representative for more information.

1. Moisten a lint-free cloth with isopropyl alcohol.
2. Wipe the ceramic ferrule with the cloth. Be sure to wipe the entire length of the ferrule and the ferrule tip.
3. Dry the ferrule with air.
4. If the connector is not being used immediately, cover the connector with the dust cap.

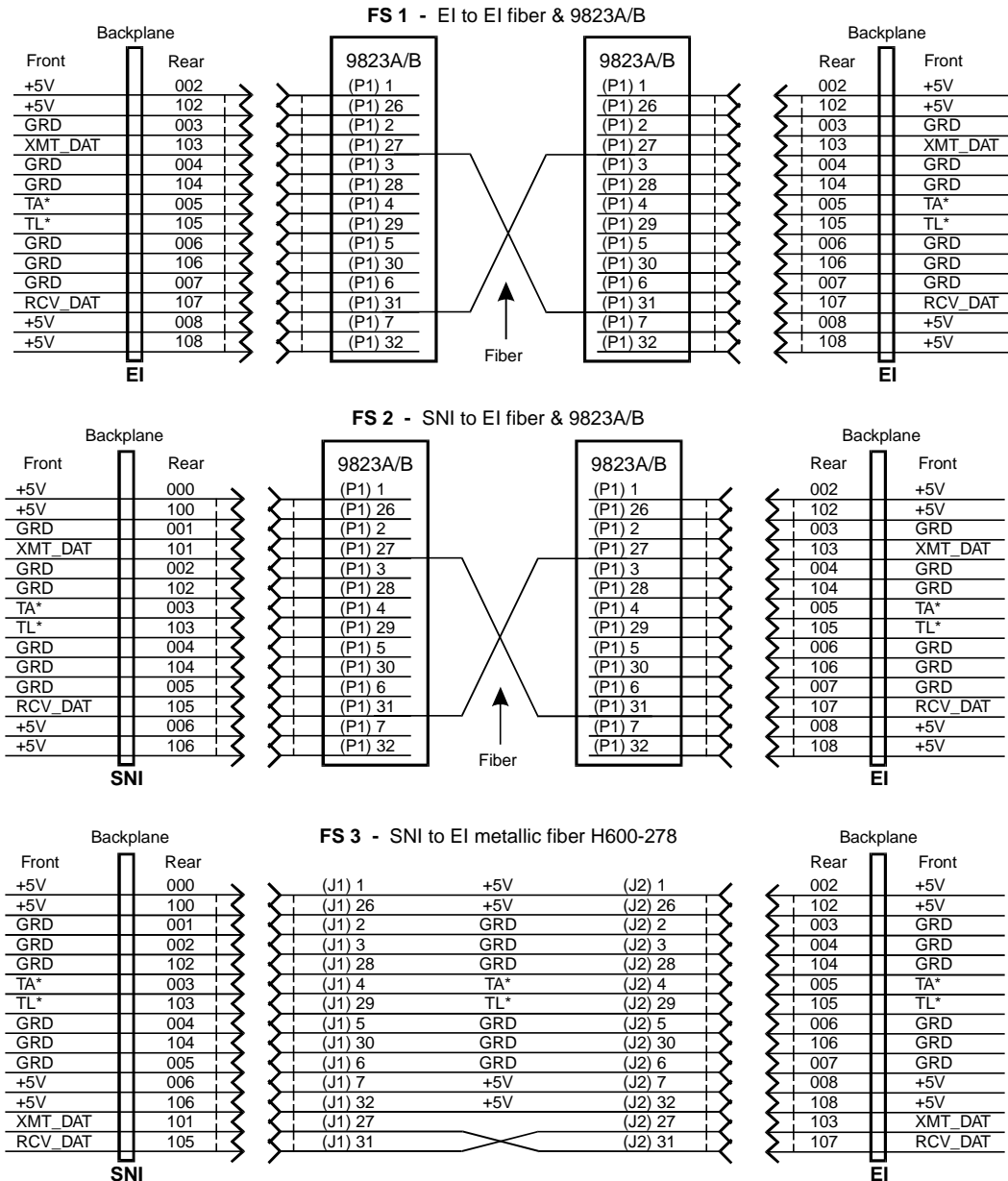
Connector and Cable Diagrams

C

This chapter provides connector and cable diagrams for the DEFINITY Enterprise Communications Server.

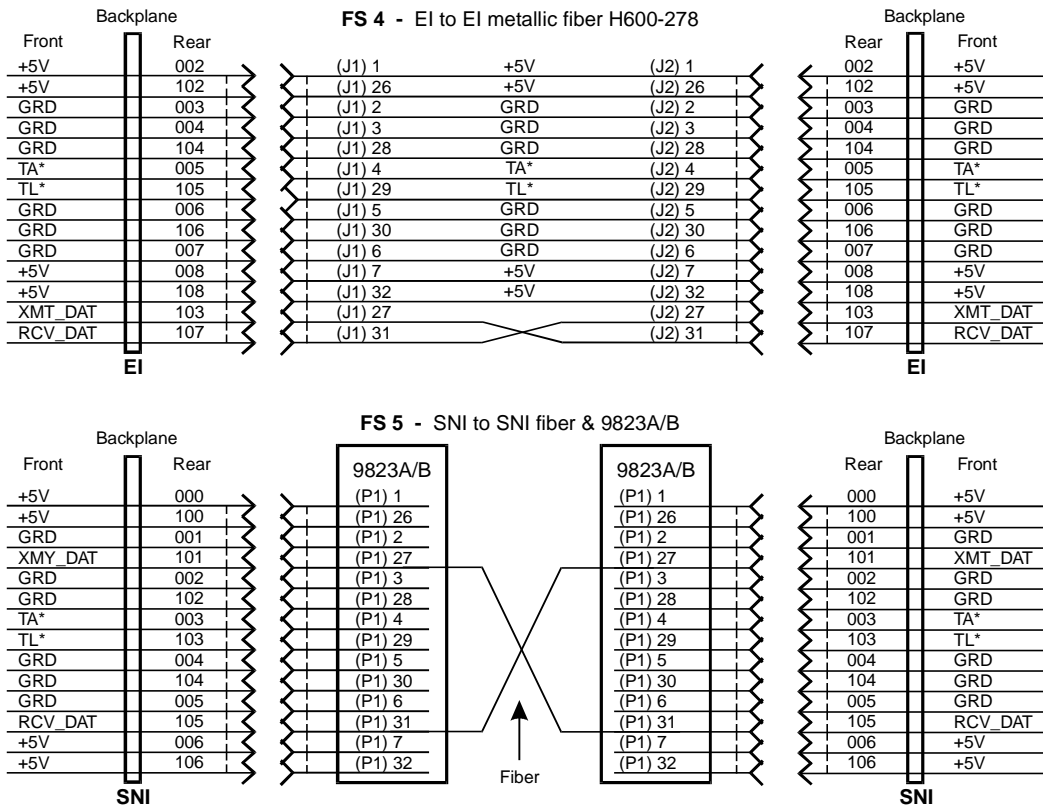
For circuit pack and auxiliary equipment classifications; and for auxiliary equipment lead designations, refer to the tables at the end of [Chapter 5, “Install and Wire Telephones and Other Equipment”](#).

See [Figure C-1](#) for Expansion Interface to Expansion Interface fiber interconnect.



r975bb1a MMR 051096

Figure C-1. Expansion Interface to Expansion Interface Fiber (Part 1)



r975bb1b MMR 051096

Figure C-2. Expansion Interface to Expansion Interface Fiber (Part 2)

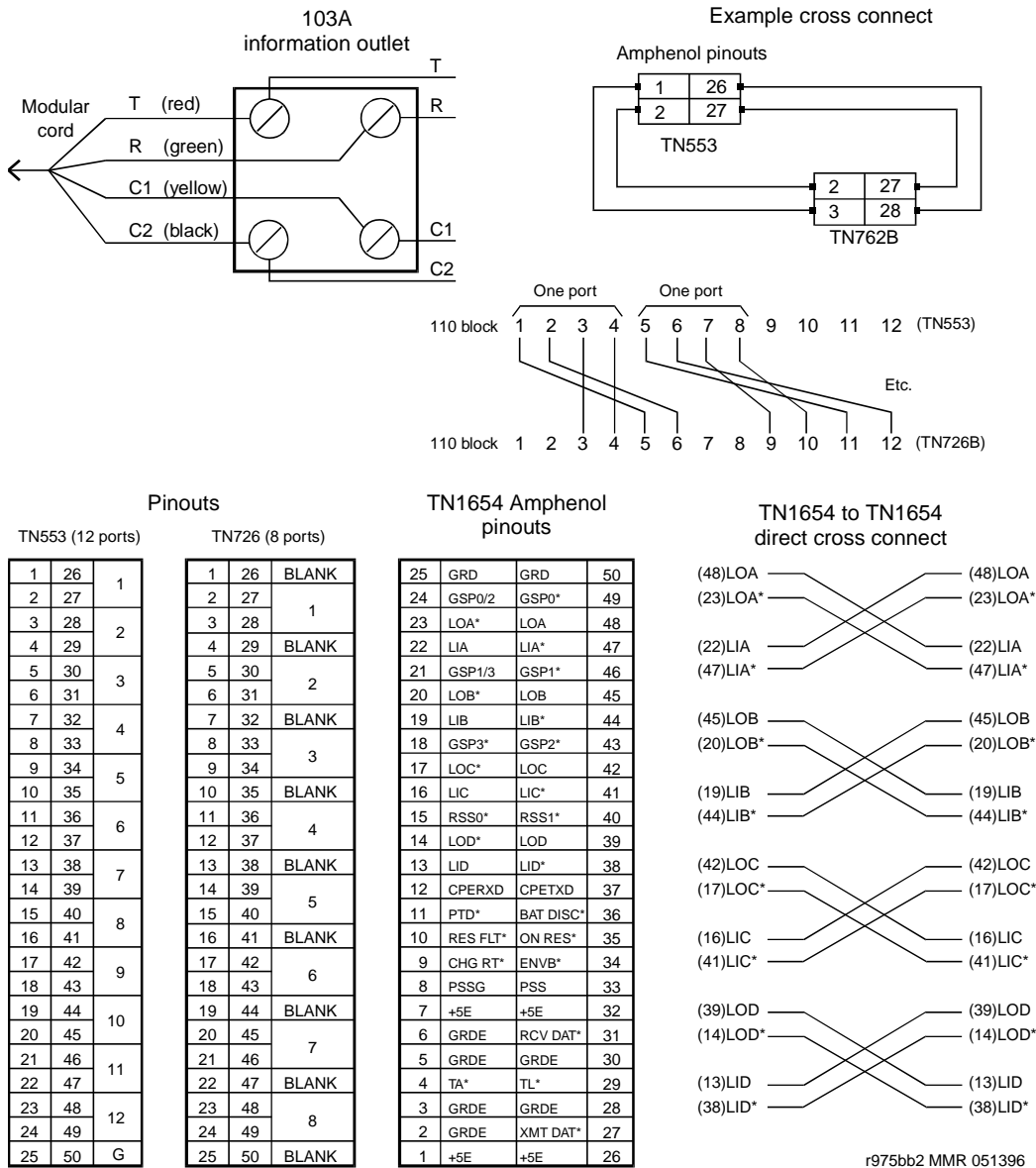
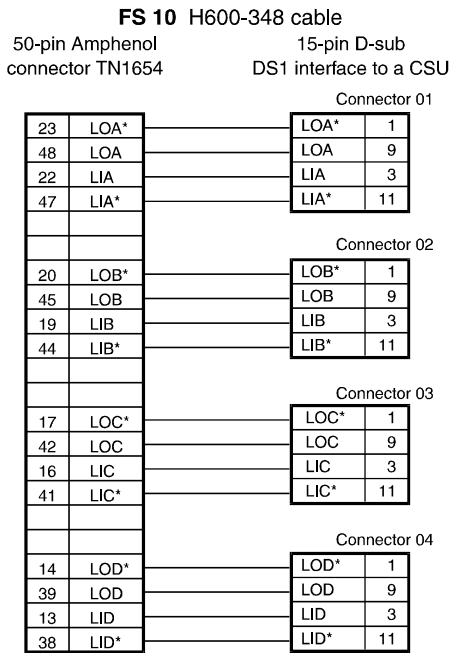
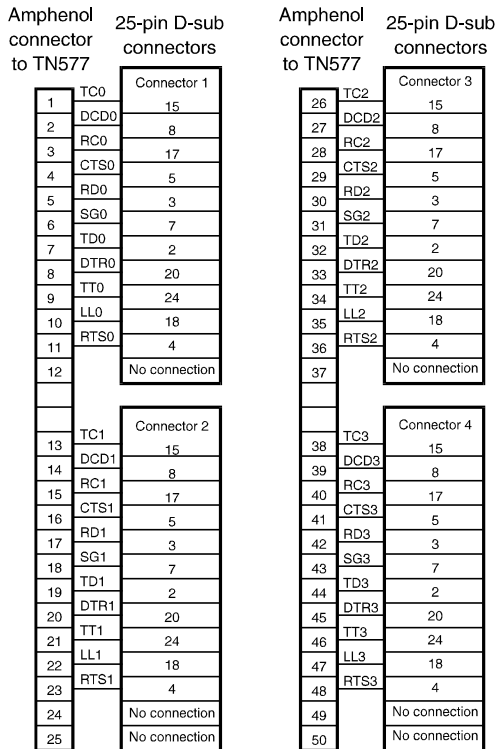


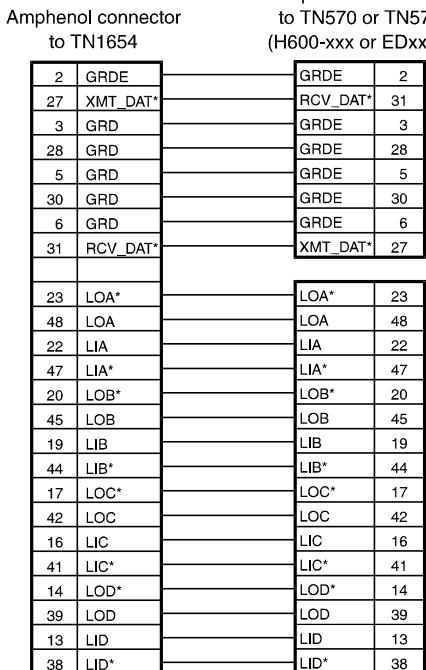
Figure C-3. Sample Cross-Connects



FS 11 H600-347 cable
 (packet gateway interface cable)



FS 12
 Amphenol connector to TN570 or TN573 (H600-xxx or EDxxxx)



Pass thru to Amphenol connector to H600-348 or to cross connect

Figure C-4. Sample Cable Pinouts

FS 13 600-307 cable

50-pin Amphenol connector to TN767, TN722, TN464

2	GRD	15-pin D-sub to a CSU	LI	3
3	GRD		LI*	11
22	LI		LO*	1
47	LI*		L0	9
23	LO*		LOOP1	5
48	L0		LOOP2	6
24	LOOP1			
49	LOOP2			

FS 14 846448652

(H600-xxx or EDxxxx)

Amphenol connection to TN574 Amphenol connection to fiber transceiver 9823A or 9823B

1	+5	+5	1
26	+5	+5	26
2	GRD	GRD	2
27	TX	TX	27
3	GRD	GRD	3
28	GRD	GRD	28
4	TA*	TA*	4
29	TL*	TL*	29
5	GRD	GRD	5
30	GRD	GRD	30
6	GRD	GRD	6
31	RX	RX	31
7	+5	+5	7
32	+5	+5	32

FS 15 Clock (STRATUM 3 clock interface)

PPN control carrier

FS 16 TERMINAL

PPN & EPN terminal connections

25			50
24			49
23			48
22	ALRM5A	ALRM5B	47
21			46
20	EXTSYNDR	EXTSYNOT	45
19			44
18			43
17	EXTSYN1T	EXTSYN1R	42
16			41
15	ALRM1A	ALRM1B	40
14			39
13			38
12			37
11			36
10	ALRM4A	ALRM4B	35
09			34
08	ALRM3A	ALRM3B	33
07			32
06			31
05	ALRM2A	ALRM2B	30
04			29
03	ALRM0A	ALRM0B	28
02			27
01			26

Pin number	Lead designation
1	
2	TD
3	RD
4	RTS
5	CTS
6	DSR
7	SGRD
8	CD
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	DTR
20	
21	
22	
23	
24	

23	LOA*	LOA*	23
48	LOA	LOA	48
22	LIA	LIA	22
47	LIA*	LIA*	47
20	LOB*	LOB*	20
45	LOB	LOB	45
19	LIB	LIB	19
44	LIB*	LIB*	44
17	LOC*	LOC*	17
42	LOC	LOC	42
16	LIC	LIC	16
41	LIC*	LIC*	41
14	LOD*	LOD*	14
39	LOD	LOD	39
13	LID	LID	13
38	LID*	LID*	38

Pass thru to Amphenol connection to H600-348 or to cross connect

pdf001 LJK 010297

Figure C-5. Sample Pinouts

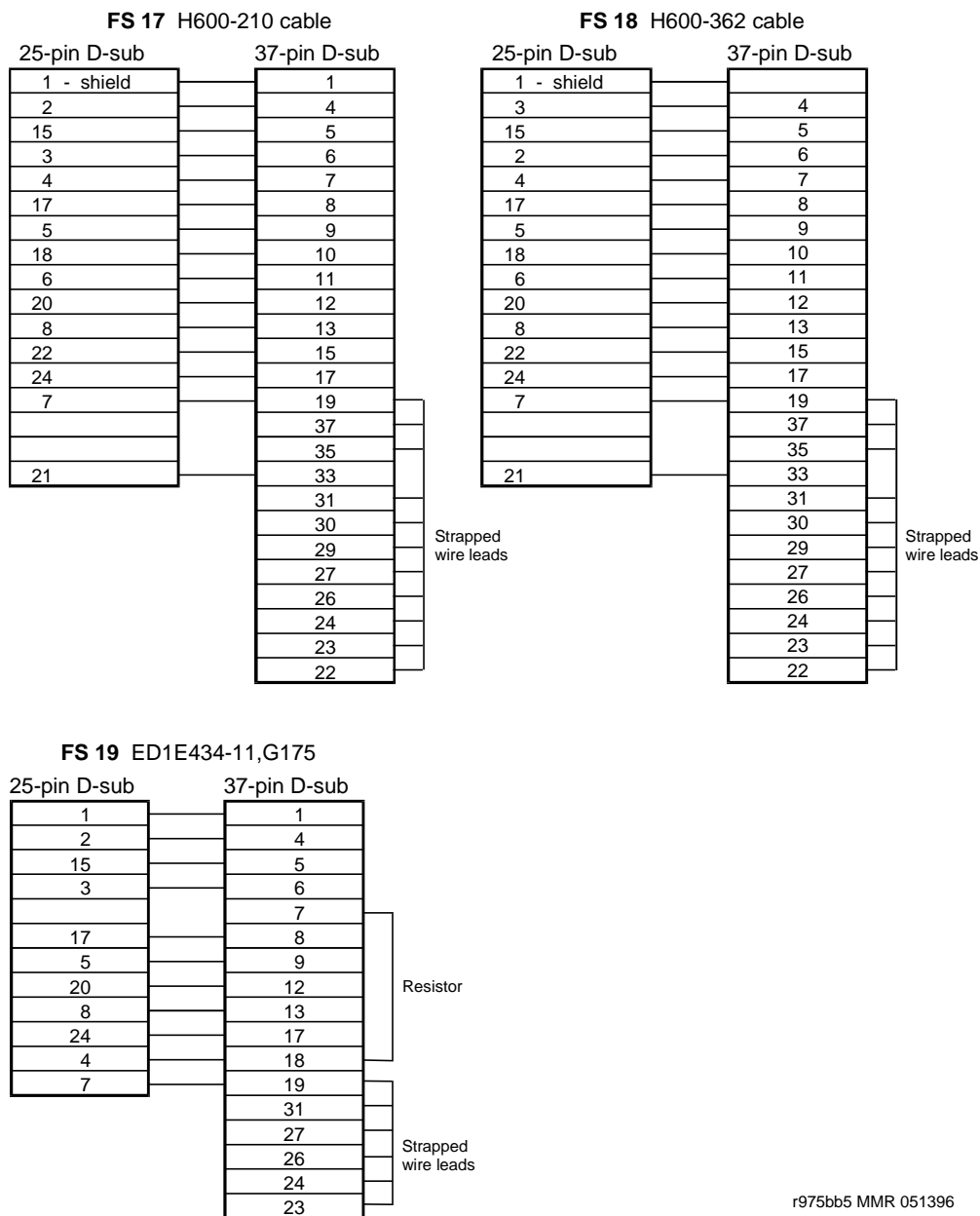
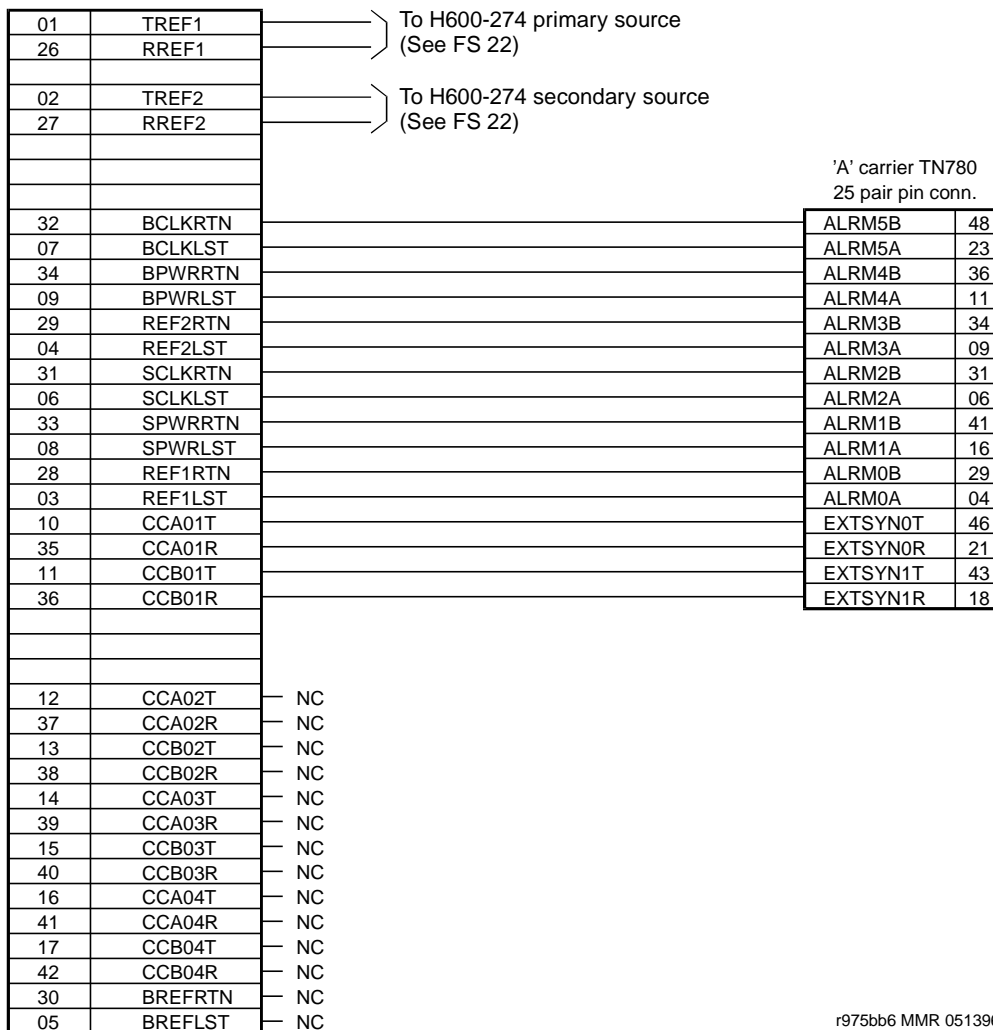


Figure C-6. Sample Cable Pinouts

FS 20 STRATUM 3 clock connector

Duplicated synchronization clock,
 simplex system, dual input references

STRATUM 3 clock connector



'A' carrier TN780
 25 pair pin conn.

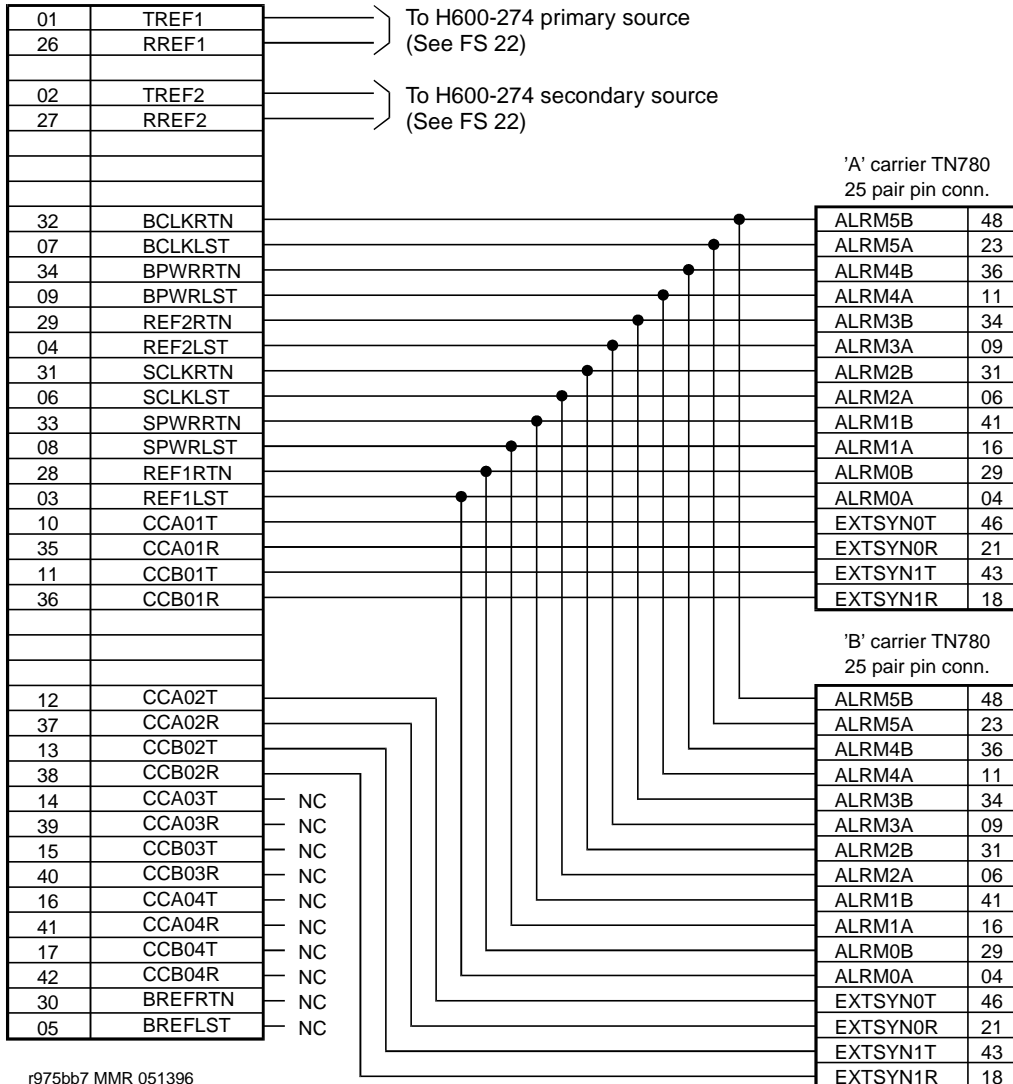
r975bb6 MMR 051396

Figure C-7. STRATUM 3 Clock Connector Pinout

FS 21 STRATUM 3 clock connector

Duplicated synchronization clock,
 duplicated system, dual input references

STRATUM 3 clock connector



r975bb7 MMR 051396

Figure C-8. STRATUM 3 Clock Connector

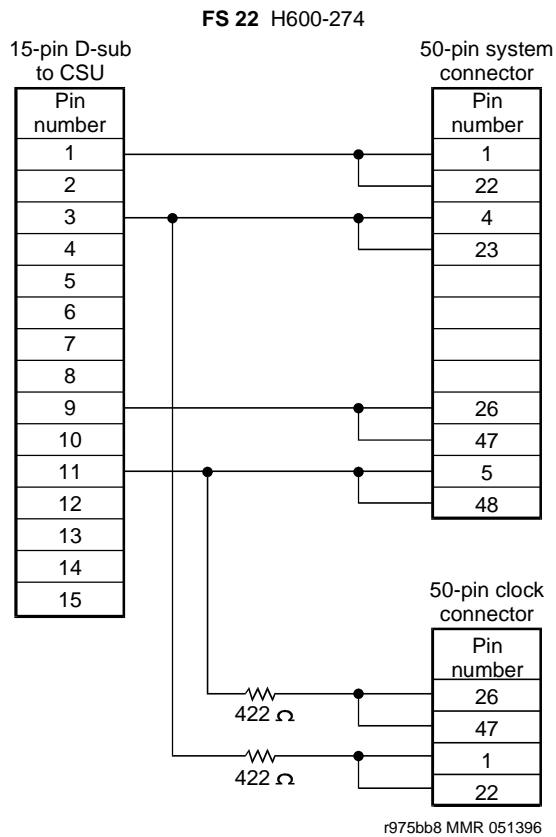


Figure C-9. Sample H600-274 Cable

Access Security Gateway

D

This appendix provides information on how to administer and use Access Security Gateway (ASG). ASG employs a challenge/response protocol to confirm the validity of a user and reduce the opportunity for unauthorized access. ASG authentication will be imposed for Lucent services logins as indicated below:

- init - all types of access require ASG authentication
- inads - all types of access require ASG authentication
- craft - if accessing remotely, ASG authentication is required.



NOTE:

Craft login sessions continue to rely on password authentication.

Using the ASG Mobile

1. Double click on the ASG Mobile V1.1 on your desktop and an ASG Mobile V1.1 Login window appears.
2. In the `Tech ID` field, type your login ID, which is the name of the attached file (without the ".asg"). Your login ID is the same as your Lucent login (or an abbreviated part of it).
3. Type the password twice. Note that the password is case-sensitive.



NOTE:

Your new password will be sent to you in a separate email.

4. Click **OK** and an ASG Mobile V1.1 Authentication window appears.
5. Use your communications package (for example, DSA, DNA, or ProComm) to dial the switch you need to contact.
6. Log into your communications package window as either **init**, **inads**, or **craft**. Instead of a password prompt, a seven-digit (challenge) number appears in the window of your communications package.
7. Move to the ASG Mobile V1.1 Authentication window.
8. Type the 10-digit Product ID in the `Equipment ID` field. The default ID is 10 zeros (0000000000).
9. Type **init**, **inads**, or **craft** in the `Equipment Login` field. The **craft** login ID is the default.
10. Type the challenge number (from your communications package window) into the `Challenge` field. Do not use the "-" character.
11. Type the trouble ticket number in the `Ticket Number` field. If there is no ticket number, you can use this field as a one-word comment field or leave it blank.
12. Click **Start**. The `Activity Status` field displays "Started" and the `Response` field displays a new 7-digit number.
13. Move to your communications package window.
14. Type the new 7-digit (response) number in the `Response` field. Do not use the "-" character.

DEFINITY ECS verifies the response. If correct, DEFINITY logs you on. If the response is incorrect, return to step 1. If this is the third rejection, see the maintenance book for your system.

UPS Installation for SCC EPN A-Carrier Cabinet



This appendix describes the procedure for connecting the Lucent Series 1 On-Line Uninterruptible Power System (UPS) to a DEFINITY® SCC EPN cabinet. The UPS provides information on wiring, administering, and documenting alarms, which allows remote monitoring of power and UPS problems. It also maintains critical A-carrier ports for about 14 minutes during a power outage.

There are two configurations for connecting a UPS to an SCC cabinet:

- UPS connection for fiber-remoted SCC EPN
- UPS connection for DS1-remoted SCC EPN and associated Channel Service Unit (CSU).

The installation procedure follows this general process:

1. Connect the UPS
2. Wire the 700A8 plug
3. Make the remaining connections
4. Administer the external device alarm
5. Load-test and verify alarms

Parts List



NOTE:

This procedure requires a cross-connect punchdown tool.

Table E-1. Required Hardware

Comcode	Description
407662733 (800VA)	800-VA UPS for 1 CSU and 1 SCC
407662741 (1000VA)	1000-VA UPS for 2 to 4 CSUs and 1 SCC
407691401	Z3A2 UPS alarm adapter with 700A8 plug included

Connect the UPS

1. Notify the customer of an EPN outage during this procedure.
2. Turn off the SCC circuit breaker.
3. Unplug the SCC from the commercial power source.
4. Plug the SCC power cord into the UPS.
5. Turn on the SCC circuit breaker.
6. Plug the UPS into a 120 VAC NEMA 5-15R receptacle.
7. Press and hold the OUTPUT ON button on the UPS until you hear a beep. The INPUT ON and OUTPUT ON LEDs light up.
8. Program the UPS communication interface port for AS400 mode. Refer to the UPS Site Preparation, Installation and Operator's Manual, 167-405-120.

Wire the 700A8 Plug

1. Cut a piece of 24AWG (2 twisted pairs) wire long enough to reach from the rear of the UPS to the 110 cross-connect field.
2. Hold the clear cover for the 700A8 plug in your hand with the punch down grooves away from you. The groove on the left side is pin 1. See [Figure E-1](#).



NOTE:

If the wire pairs are not in the correct positions, then the alarm verification test may not work.

3. Route the wires through the cover, placing the utility fail pair in positions 1 and 2 and the UPS pair in positions 5 and 6. Positions 3, 4, 7, and 8 are not used.
4. Press the plug onto the cover. This forces the wires into the plug contacts.

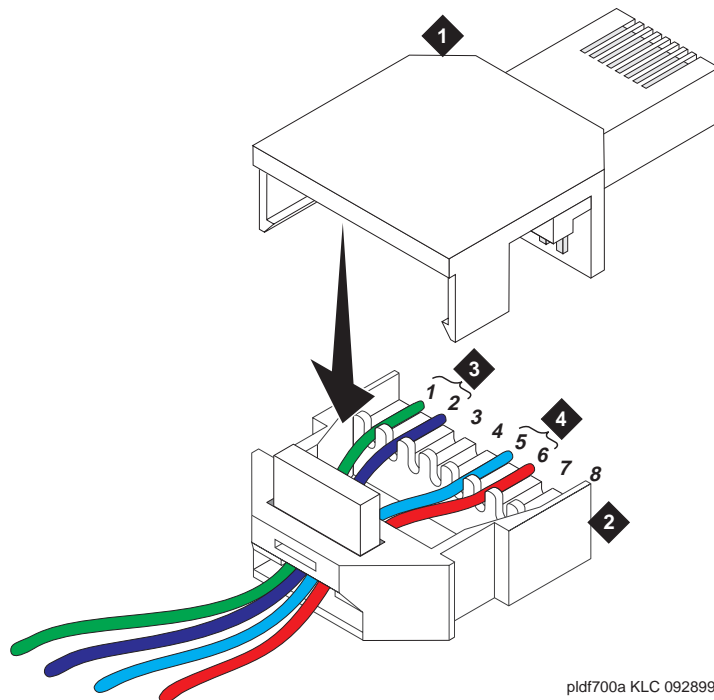


Figure Notes

- | | |
|-------------------------------|---------------------------|
| 1. 700A8 plug | 3. Utility fail wire pair |
| 2. Clear cover for 700A8 plug | 4. UPS fail wire pair |

Make the Remaining Connections

For a fiber-remoted SCC EPN, refer to [Figure E-2](#). For a DS1-remoted SCC EPN and associated CSUs, refer to [Figure E-3](#).

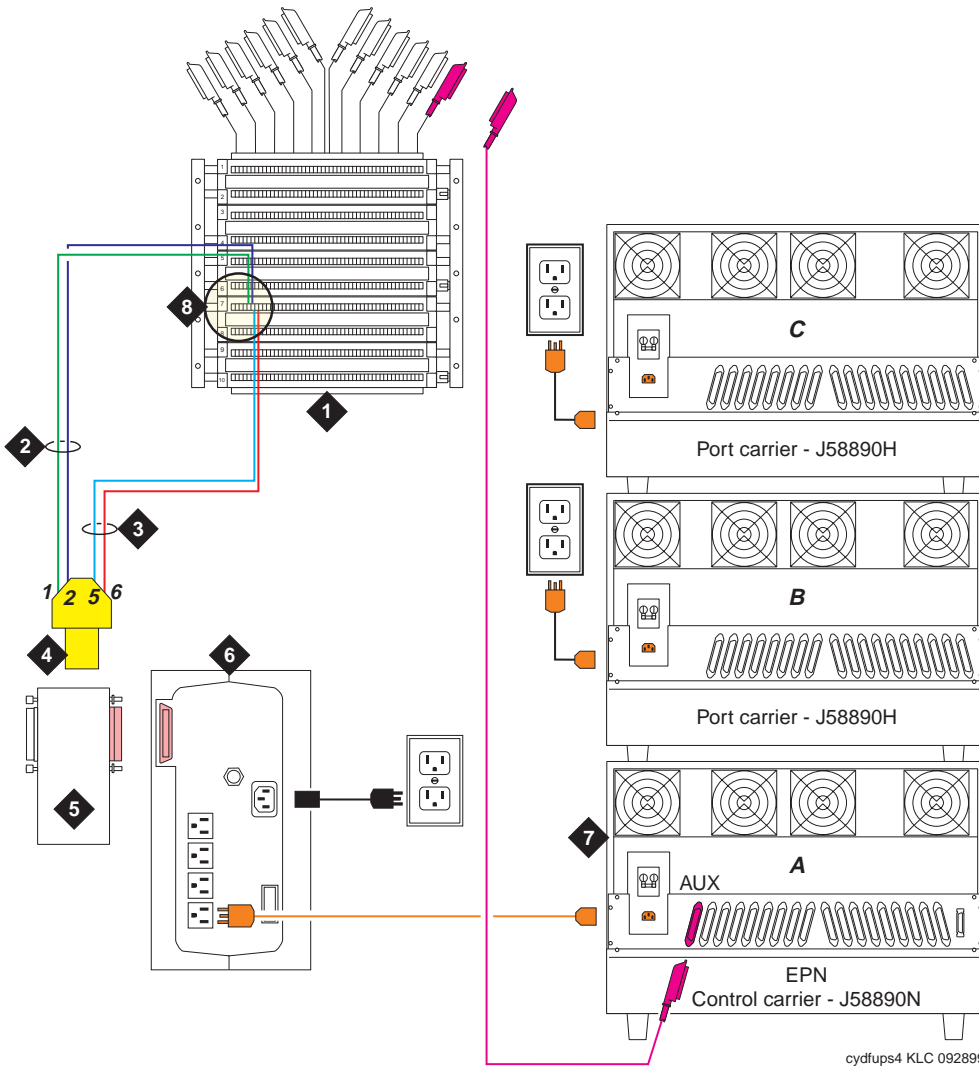
1. Plug the 700A8 plug into the Z3A2 UPS alarm adapter.
2. Connect the alarm adapter to the UPS DB25 RS-232 serial port connector.
3. Connect the wires from the plug to the 110 cross-connect field for the AUX connector (see [Table E-2](#) and [Figure E-4](#)).

If connecting a UPS for a DS1-remoted SCC EPN:

4. Plug the CSU(s) used in the A-level DS1 converter into the UPS.

Table E-2. Wire Connections

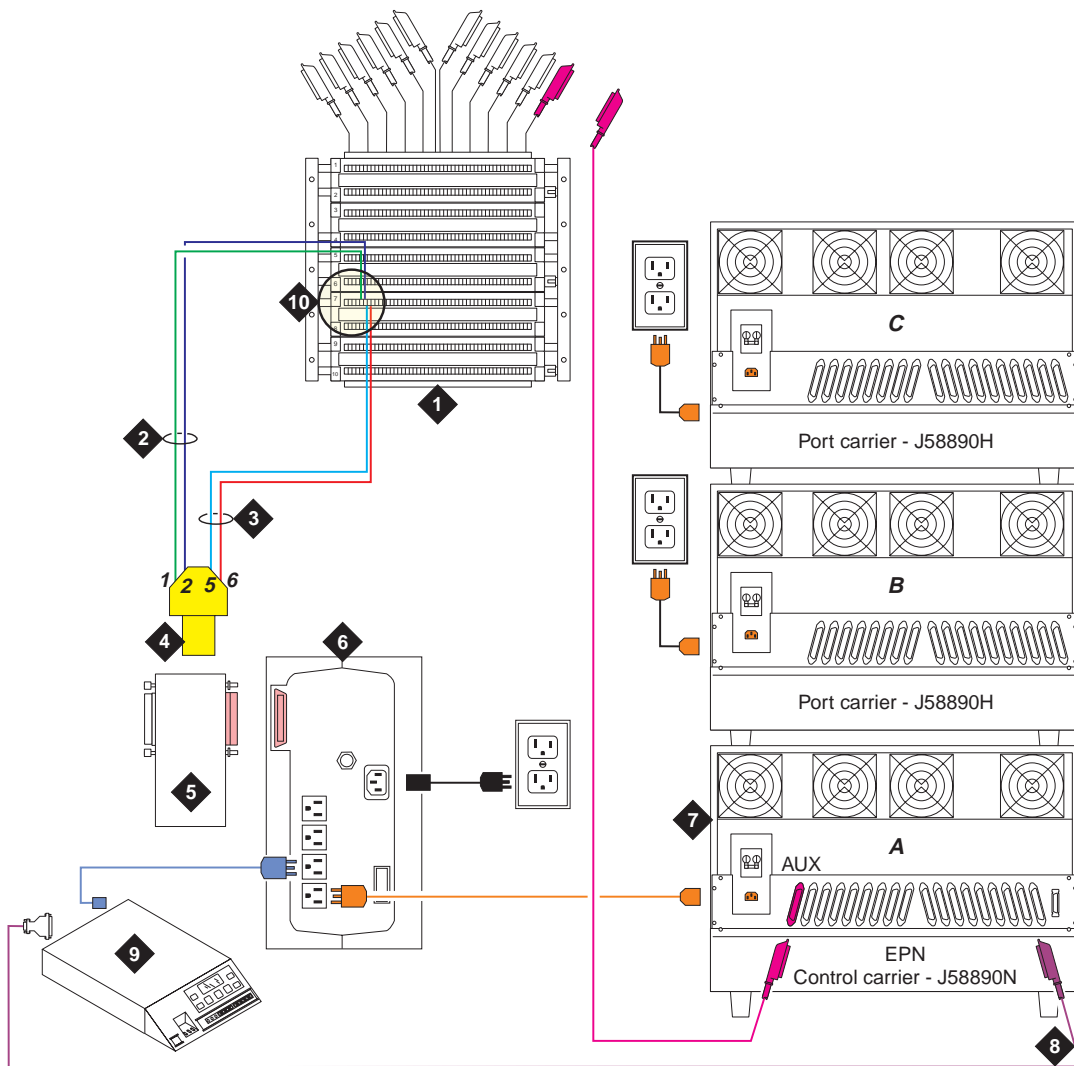
700A8 Plug			DEFINITY AUX Connector 110 Field	
UPS Alarm Name	Pins		Pins	External Alarm Name
Pair 1: Utility Fail Alarm	1	Connects to	1	1M
	2		2	Major Alarm Pair
Pair 3: UPS Fail Alarm	5		3	1m Minor Alarm Pair
	6		4	



cydfups4 KLC 092899

Figure Notes

1. 110 cross-connect field
2. Utility fail wire pair
3. UPS fail wire pair
4. 700A8 (RJ45) modular plug (see [Figure E-1](#) for wiring detail)
5. Z3A2 UPS alarm adapter plugs into DB25 connector
6. UPS 800/1000VA
7. EPN control carrier
8. [Figure E-4](#) has wiring detail

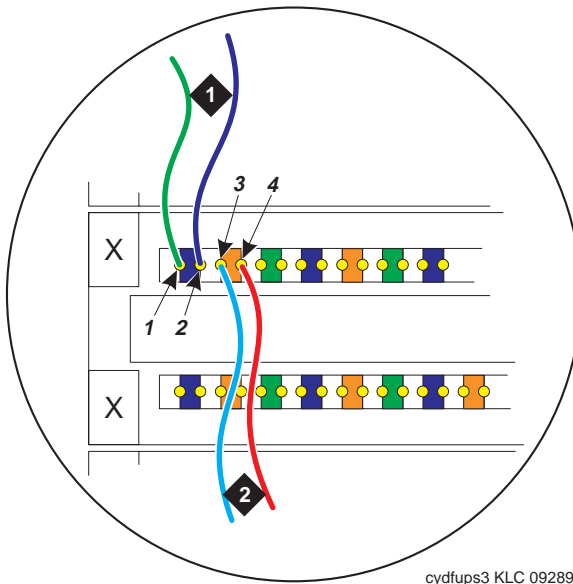


cydfups5 KLC 092899

Figure Notes

- | | |
|---|---|
| 1. 110 cross-connect field | 4. UPS 800/1000VA |
| 2. Utility fail wire pair | 5. Z3A2 UPS alarm adapter plugs into DB25 connector |
| 3. UPS fail wire pair | 6. UPS 800/1000VA |
| 4. 700A8 (RJ45) modular plug (see Figure E-1 for wiring detail) | 7. EPN control carrier |
| 5. Z3A2 UPS alarm adapter plugs into DB25 connector | 8. H600-348 DS1 converter cable |
| 6. UPS 800/1000VA | 9. Channel service unit |
| 7. EPN control carrier | 10. Figure E-4 has wiring detail |
| 8. H600-348 DS1 converter cable | |
| 9. Channel service unit | |
| 10. Figure E-4 has wiring detail | |

Figure E-3. UPS for DS1 Remoted SCC EPN



cydfups3 KLC 092899

Figure Notes

- | | |
|----------------------------|------------------------|
| 1. Utility fail wire pair: | 2. UPS fail wire pair: |
| ■ 1M (major alarm) | ■ 1m (minor alarm) |
| ■ return GRD | ■ return GRD |

Figure E-4. Enlarged View of the 110 Cross-Connect Field for the AUX Connector

Administer the EDA

If the external device alarm (EDA) administration is turned on:

1. Log in as **craft**.

Enter the following information (**XX** refers to the 2-digit cabinet number of the EPN):

2. Type **add eda-external-device-alm XXmajor** and press Enter.
3. Type **XXmajor** in the `Port` field.
4. Type **major** in the `Alarm Type` field.
5. Type **AC Pwr** in the `Alt Name` field.
6. Type **Loss of AC Power A Level UPS on Battery** in the `Description` field.
7. Enter data in the remaining fields based on your installation requirements.
8. Type **add eda-external-device-alm XXminor** and press Enter.
9. Type **XXminor** in the `Port` field.
10. Type **minor** in the `Alarm Type` field.
11. Type **UPS A** in the `Alt Name` field.
12. Type **A Level UPS is on Electronic Bypass** in the `Description` field.
13. Enter data in the remaining fields based on your installation requirements.
14. When done, press Enter.

Load Test and Verify Alarms



CAUTION:

Do not remove or unplug the input cord when the UPS is turned on. This removes the safety ground from the UPS and the equipment connected to the UPS.

1. With the DEFINITY ECS on the UPS, find the (dedicated) circuit breaker that feeds power to the receptacle that the UPS is plugged into.
2. Turn the breaker off. At that time, the UPS sounds an alarm, and the RED LED (ON BATTERY) and 3 GREEN LEDs (L1, L2, and L3) above the GREEN LED (OUTPUT) light up.
3. If the EDA is turned on, type **test eda-external-device-alm physical XXmajor** and press Enter. Verify that the test fails.
4. If the EDA is turned off, type **display alarms** and press Enter.
5. Type your requirements in the various fields of the Alarm Report, then press Enter.
6. Verify that you have a major alarm on EXT-DEV for Port XXmajor. You do not need to verify a minor alarm (UPS on Electronic Bypass).
7. If a U.S. installation, call the Product Performance and Analysis organization on 800-242-2121.
 - a. Press 0 (zero).
 - b. Enter extension 85284. Verify that the EXT-DEV XXmajor alarm was reported to them.
 - c. Ask the Product Performance and Analysis organization to establish a data base for the installation location (IL). This defines the major and minor external alarms.

The Product Performance and Analysis organization enters the major alarm on EXT DEV XX as "Loss of Commercial Power, UPS on Battery" and the minor alarm on EXT DEV XX is "UPS is on Electronic Bypass."

E UPS Installation for SCC EPN A-Carrier Cabinet
Load Test and Verify Alarms

E-10

Glossary and Abbreviations

Numerics

800 service

A service in the United States that allows incoming calls from certain areas to an assigned number for a flat-rate charge based on usage.

A

AA

Archangel. See [angel](#).

AAC

ATM access concentrator

AAR

See [Automatic Alternate Routing \(AAR\)](#).

abandoned call

An incoming call in which the caller hangs up before the call is answered.

Abbreviated Dialing (AD)

A feature that allows callers to place calls by dialing just one or two digits.

AC

1. Alternating current.
2. See [Administered Connection \(AC\)](#).

ACA

See [Automatic Circuit Assurance \(ACA\)](#).

ACB

See [Automatic Callback \(ACB\)](#).

access code

A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk.

access endpoint

Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie-trunk circuit pack that is assigned a unique extension.

access tie trunk

A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called access trunk.

access trunk

See [access tie trunk](#).

ACCUNET

A trademarked name for a family of digital services offered by AT&T in the United States.

ACD

See [Automatic Call Distribution \(ACD\)](#). ACD also refers to a work state in which an agent is on an ACD call.

ACD agent

See [agent](#).

ACD work mode

See [work mode](#).

active-notification association

A link that is initiated by an adjunct, allowing it to receive event reports for a specific switch entity, such as an outgoing call.

active-notification call

A call for which event reports are sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domain

VDN or ACD split extension for which event notification has been requested.

ACU

See [Automatic calling unit \(ACU\)](#).

ACW

See [after-call work \(ACW\) mode](#).

AD

See [Abbreviated Dialing \(AD\)](#).

ADAP

AUDIX Data Acquisition Package

ADC

See [analog-to-digital converter \(ADC\)](#).

adjunct

A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor. See also [application](#).

adjunct-control association

A relationship initiated by an application via *Third Party Make Call*, the *Third Party Take Control*, or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

adjunct-controlled call

Call that can be controlled using an adjunct-control association. Call must have been originated via *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled split

An ACD split that is administered to be under adjunct control. Agents logged into such splits must do all telephony work, ACD login/ logout, and changes of work mode through the adjunct (except for auto-available adjunct-controlled splits, whose agents may not log in/out or change work mode).

adjunct-monitored call

An adjunct-controlled call, active-notification call, or call that provides event reporting over a domain-control association.

Adjunct-Switch Application Interface (ASAI)

A recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

ADM

Asynchronous data module

administer

To access and change parameters associated with the services or features of a system.

Administered Connection (AC)

A feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

administration group

See [capability group](#).

administration terminal

A terminal that is used to administer and maintain a system. See also [terminal](#).

Administration Without Hardware (AWOH)

A feature that allows administration of ports without associated terminals or other hardware.

ADU

See [asynchronous data unit \(ADU\)](#).

AE

See [access endpoint](#).

after-call work (ACW) mode

A mode in which agents are unavailable to receive ACD calls. Agents enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call.

AG

ASAI Gateway

agent

A person who receives calls directed to a split. A member of an ACD hunt group or ACD split. Also called an ACD agent.

agent report

A report that provides historical traffic information for internally measured agents.

AIM

Asynchronous interface module

AIOD

Automatic Identification of Outward Dialing

ALBO

Automatic Line Build Out

All trunks busy (ATB)

The state in which no trunks are available for call handling.

ALM-ACK

Alarm acknowledge

American Standard Code for Information Interchange

See [ASCII \(American Standard Code for Information Interchange\)](#).

AMW

Automatic Message Waiting

AN

Analog

analog

The representation of information by continuously variable physical quantities such as amplitude, frequency, and phase. See also [digital](#).

analog data

Data that is transmitted over a digital facility in analog (PCM) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

analog telephone

A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

analog-to-digital converter (ADC)

A device that converts an analog signal to digital form. See also [digital-to-analog converter \(DAC\)](#).

angel

A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch-processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds.

ANI

See [Automatic Number Identification \(ANI\)](#).

ANSI

American National Standards Institute. A United States professional/technical association supporting a variety of standards.

answerback code

A number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

AOL

Attendant-offered load

AP

Applications processor

APLT

Advanced Private-Line Termination

appearance

A software process that is associated with an extension and whose purpose is to supervise a call. An extension can have multiple appearances. Also called call appearance, line appearance, and occurrence. See also [call appearance](#).

application

An adjunct that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

applications processor

A micro-computer based, program controlled computer providing application services for the DEFINITY switch. The processor is used with several user-controlled applications such as traffic analysis and electronic documentation.

application service element

See [capability group](#).

architecture

The organizational structure of a system, including hardware and software.

ARS

See [Automatic Route Selection \(ARS\)](#).

ASA

Average speed of answer — a call center measurement of the average time a caller will wait for an agent.

ASAI

See [Adjunct-Switch Application Interface \(ASAI\)](#)

ASCII (American Standard Code for Information Interchange)

The standard code for representing characters in digital form. Each character is represented by an 8-bit code (including parity bit).

association

A communication channel between adjunct and switch for messaging purposes. An active association is one that applies to an existing call on the switch or to an extension on the call.

asynchronous data transmission

A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called asynchronous transmission. See also [synchronous data transmission](#).

asynchronous data unit (ADU)

A device that allows direct connection between RS-232C equipment and a digital switch.

asynchronous transfer mode (ATM)

A packet-like switching technology in which data is transmitted in fixed-size (53-byte) cells. ATM provides high-speed access for data communication in LAN, campus, and WAN environments.

ATB

See [All trunks busy \(ATB\)](#).

ATD

See [Attention dial \(ATD\)](#).

ATM

See [asynchronous transfer mode \(ATM\)](#).

attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also [attendant console](#).

attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called console. See also [attendant](#).

Attention dial (ATD)

A command in the Hayes modem command set for asynchronous modems.

Audio Information Exchange (AUDIX)

A fully integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

AUDIX

See [Audio Information Exchange \(AUDIX\)](#).

auto-in trunk group

Trunk group for which the CO processes all of the digits for an incoming call. When a CO seizes a trunk from an auto-in trunk group, the switch automatically connects the trunk to the destination — typically an ACD split where, if no agents are available, the call goes into a queue in which callers are answered in the order in which they arrive.

Auto-In Work mode

One of four agent work modes: the mode in which an agent is ready to process another call as soon as the current call is completed.

Automatic Alternate Routing (AAR)

A feature that routes calls to other than the first-choice route when facilities are unavailable.***

Automatic Callback (ACB)

A feature that enables internal callers, upon reaching a busy extension, to have the system automatically connect and ring both parties when the called party becomes available.

Automatic Call Distribution (ACD)

A feature that answers calls, and then, depending on administered instructions, delivers messages appropriate for the caller and routes the call to an agent when one becomes available.

Automatic Call Distribution (ACD) split

A method of routing calls of a similar type among agents in a call center. Also, a group of extensions that are staffed by agents trained to handle a certain type of incoming call.

Automatic calling unit (ACU)

A device that places a telephone call.

Automatic Circuit Assurance (ACA)

A feature that tracks calls of unusual duration to facilitate troubleshooting. A high number of very short calls or a low number of very long calls may signify a faulty trunk.

Automatic Number Identification (ANI)

Representation of the calling number, for display or for further use to access information about the caller. Available with Signaling System 7.

automatic restoration

A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications equipment). Restoration is done within seconds of a service disruption so that critical data applications can remain operational.

Automatic Route Selection (ARS)

A feature that allows the system to automatically choose the least-cost way to send a toll call.

automatic trunk

A trunk that does not require addressing information because the destination is predetermined. A request for service on the trunk, called a seizure, is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called automatic incoming trunk and automatic tie trunk.

AUX

Auxiliary

auxiliary equipment

Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

auxiliary trunk

A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

Aux-Work mode

A work mode in which agents are unavailable to receive ACD calls. Agents enter Aux-Work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

AVD

Alternate voice/data

AWOH

See [Administration Without Hardware \(AWOH\)](#).

AWG

American Wire Gauge

AWT

Average work time

B

B8ZS

Bipolar Eight Zero Substitution.

bandwidth

The difference, expressed in hertz, between the defined highest and lowest frequencies in a range.

barrier code

A security code used with the Remote Access feature to prevent unauthorized access to the system.

Basic Rate Interface (BRI)

A standard ISDN frame format that specifies the protocol used between two or more communications systems. As used in North America, BRI provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

baud

A unit of transmission rate equal to the number of signal events per second. See also [bit rate](#) and [bits per second \(bps\)](#).

BCC

See [bearer capability class \(BCC\)](#).

BCMS

Basic Call Management System

BCT

See [business communications terminal \(BCT\)](#).

bearer capability class (BCC)

Code that identifies the type of a call (for example, voice and different types of data). Determination of BCC is based on the caller's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint. Current BCCs are 0 (voice-grade data and voice), 1 (DMI mode 1, 56 kbps data transmission), 2 (DMI mode 2, synchronous/asynchronous data transmission up to 19.2 kbps) 3 (DMI mode 3, 64 kbps circuit/packet data transmission), 4 (DMI mode 0, 64 kbps synchronous data), 5 (temporary signaling connection, and 6 (wideband call, 128–1984 kbps synchronous data).

BER

Bit error rate

BHCC

Busy-hour call completions

bit (binary digit)

One unit of information in binary notation, having two possible values: 0 or 1.

bits per second (bps)

The number of binary units of information that are transmitted or received per second. See also [baud](#) and [bit rate](#).

bit rate

The speed at which bits are transmitted, usually expressed in bits per second. Also called data rate. See also [baud](#) and [bits per second \(bps\)](#).

BLF

Busy Lamp Field

BN

Billing number

BOS

Bit-oriented signaling

BPN

Billed-party number

bps

See [bits per second \(bps\)](#).

bridge (bridging)

The appearance of a voice terminal's extension at one or more other voice terminals.

BRI

See [Basic Rate Interface \(BRI\)](#)

Tbridged appearance

A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

BTU

British Thermal Unit

buffer

1. In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.

2. In software, an area of memory that is used for temporary storage.

bus

A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

business communications terminal (BCT)

A digital data terminal used for business applications. A BCT can function via a data module as a special-purpose terminal for services provided by a processor or as a terminal for data entry and retrieval.

BX.25

A version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the ISO reference model.

bypass tie trunks

A 1-way, outgoing tie trunk from a tandem switch to a main switch in an ETN. Bypass tie trunks, provided in limited quantities, are used as a last-choice route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

byte

A sequence of (usually eight) bits processed together.

C

cabinet

Housing for racks, shelves, or carriers that hold electronic equipment.

cable

Physical connection between two pieces of equipment (for example, data terminal and modem) or between a piece of equipment and a termination field.

cable connector

A jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

CACR

Cancellation of Authorization Code Request

CAG

Coverage answer group

call appearance

1. For the attendant console, six buttons, labeled a–f, used to originate, receive, and hold calls. Two lights next to the button show the status of the call appearance.
2. For the voice terminal, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance.

call-control capabilities

Capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets (Call Control and Domain Control).

Call Detail Recording (CDR)

A feature that uses software and hardware to record call data (same as CDRU).

Call Detail Recording utility (CDRU)

Software that collects, stores, optionally filters, and outputs call-detail records.

Call Management System (CMS)

An application, running on an adjunct processor, that collects information from an ACD unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and VDNs, and enables customers to partially administer the ACD feature for a communications system.

call-reference value (CRV)

An identifier present in ISDN messages that associates a related sequence of messages. In ASAI, CRVs distinguish between associations.

call vector

A set of up to 15 vector commands to be performed for an incoming or internal call.

callback call

A call that automatically returns to a voice-terminal user who activated the Automatic Callback or Ringback Queuing feature.

call-waiting ringback tone

A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2 seconds (in the United States). Call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature is activate and that the called party is aware of the waiting call. Tones in international countries may sound different.

call work code

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

CAMA

Centralized Automatic Message Accounting

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

carried load

The amount of traffic served by traffic-sensitive facilities during a given interval.

CARR-POW

Carrier Port and Power Unit for AC Powered Systems

CAS
Centralized Attendant Service or Call Accounting System

CCS or hundred call seconds
A unit of call traffic. Call traffic for a facility is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter C. The abbreviation for call seconds is CS. Therefore, 100 call seconds is abbreviated CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. See also [Erlang](#).

capability
A request or indication of an operation. For example, *Third Party Make Call* is a request for setting up a call; *event report* is an indication that an event has occurred.

capability group
Set of capabilities, determined by switch administration, that can be requested by an application. Capability groups denote association types. For example, *Call Control* is a type of association that allows certain functions (the ones in the capability group) to be performed over this type of association. Also referred to as administration groups or application service elements (ASEs).

CA-TSC
Call-Associated Temporary Signaling Connection

cause value
A value is returned in response to requests or in event reports when a denial or unexpected condition occurs. ASAI cause values fall into two coding standards: Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications; Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. Example: CS0/100 is coding standard 0, cause value 100.

CBC
Call-by-call or coupled bonding conductor

CC
Country code

CCIS
Common-Channel Interoffice Signaling

CCITT
CCITT (Comitte Consultatif International Telephonique et Telegraphique), now called *International Telecommunications Union* (ITU). See [International Telecommunications Union \(ITU\)](#).

CCMS
Control-Channel Message Set

CCS
See [CCS or hundred call seconds](#).

CCSA
Common-Control Switching Arrangement

CDM
Channel-division multiplexing

CDOS
Customer-dialed and operator serviced

CDR

See [Call Detail Recording \(CDR\)](#).

CDRP

Call Detail Record Poller

CDRR

Call Detail Recording and Reporting

CDRU

See [Call Detail Recording utility \(CDRU\)](#).

CEM

Channel-expansion multiplexing

center-stage switch (CSS)

The central interface between the processor port network and expansion port networks in a CSS-connected system.

central office (CO)

The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

central office (CO) codes

The first three digits of a 7-digit public-network telephone number in the United States.

central office (CO) trunk

A telecommunications channel that provides access from the system to the public network through the local CO.

CEPT1

European Conference of Postal and Telecommunications Rate 1

channel

1. A circuit-switched call.
2. A communications path for transmitting voice and data.
3. In wideband, all of the time slots (contiguous or noncontiguous) necessary to support a call. Example: an H0-channel uses six 64-kbps time slots.
4. A DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call; analogous to a single trunk.

channel negotiation

The process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is negotiated to be another channel acceptable to the switch that receives the SETUP message and ultimately to the switch that sent the SETUP. Negotiation is attempted only if the CIIE is encoded as *Preferred*. Channel negotiation is not attempted for wideband calls.

CI

Clock input

circuit

1. An arrangement of electrical elements through which electric current flows.
2. A channel or transmission path between two or more points.

circuit pack

A card on which electrical circuits are printed, and IC chips and electrical components are installed. A circuit pack is installed in a switch carrier.

CISPR

International Special Committee on Radio Interference

Class of Restriction (COR)

A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice-terminal groups, data modules, and trunk groups. See also [Class of Service \(COS\)](#).

Class of Service (COS)

A feature that uses a number to specify if voice-terminal users can activate the Automatic Callback, Call Forwarding All Calls, Data Privacy, or Priority Calling features. See also [Class of Restriction \(COR\)](#).

cm

Centimeter

CM

Connection Manager

CMC

Compact Modular Cabinet

CMDR

Centralized Message Detail Recording

CMS

Call Management System

CO

See [central office \(CO\)](#).

common-control switching arrangement (CCSA)

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

communications system

The software-controlled processor complex that interprets dialing pulses, tones, and keyboard characters and makes the proper connections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the connections. A communications system provides voice and data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also [switch](#).

confirmation tone

A tone confirming that feature activation, deactivation, or cancellation has been accepted.

connectivity

The connection of disparate devices within a single system.

console

See [attendant console](#).

contiguous

Adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. The first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a D-channel, DS0s 15 and 17 are considered contiguous.

control cabinet

See [control carrier](#).

control carrier

A carrier in a multi-carrier cabinet that contains the SPE circuit packs and, unlike an R5r control carrier, port circuit packs. Also called control cabinet in a single-carrier cabinet. See also [switch-processing element \(SPE\)](#).

controlled station

A station that is monitored and controlled via a domain-control association.

COR

See [Class of Restriction \(COR\)](#).

COS

See [Class of Service \(COS\)](#).

coverage answer group

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

coverage call

A call that is automatically redirected from the called party's extension to an alternate answering position when certain coverage criteria are met.

coverage path

The order in which calls are redirected to alternate answering positions.

coverage point

An extension or attendant group, VDN, or ACD split designated as an alternate answering position in a coverage path.

covering user

A person at a coverage point who answers a redirected call.

CP

Circuit pack

CPE

Customer-premises equipment

CPN

Called-party number

CPN/BN

Calling-party number/billing number

CPTR

Call-progress-tone receiver

CRC

Cyclical Redundancy Checking

critical-reliability system

A system that has the following duplicated items: control carriers, tone clocks, EI circuit packs, and cabling between port networks and center-stage switch in a CSS-connected system. See also [duplicated common control](#), and [duplication](#).

CSA

Canadian Safety Association or Customer Software Administrator

CSCC

Compact single-carrier cabinet

CSCN

Center-stage control network

CSD

Customer-service document

CSM

Centralized System Management

CSS

See [center-stage switch \(CSS\)](#).

CSSO

Customer Services Support Organization

CSU

Channel service unit

CTS

Clear to Send

CWC

See [call work code](#).

D

DAC

1. Dial access code or Direct Agent Calling
2. See [digital-to-analog converter \(DAC\)](#).

data channel

A communications path between two points used to transmit digital signals.

data-communications equipment (DCE)

The equipment (usually a modem, data module, or packet assembler/disassembler) on the network side of a communications link that makes the binary serial data from the source or transmitter compatible with the communications channel.

data link

The configuration of physical facilities enabling end terminals to communicate directly with each other.

data module

An interconnection device between a BRI or DCP interface of the switch and data terminal equipment or data communications equipment.

data path

The end-to-end connection used for a data communications link. A data path is the combination of all elements of an interprocessor communication in a DCS.

data port

A point of access to a computer that uses trunks or lines for transmitting or receiving data.

data rate

See [bit rate](#).

data service unit (DSU)

A device that transmits digital data on transmission facilities.

data terminal

An input/output (I/O) device that has either switched or direct access to a host computer or to a processor interface.

data terminal equipment (DTE)

Equipment consisting of the endpoints in a connection over a data circuit. In a connection between a data terminal and host, the terminal, the host, and their associated modems or data modules make up the DTE.

dB

Decibel

dBa

Decibels in reference to amperes.

dBnC

Decibels above reference noise with C filter.

DC

Direct current

DCE

Data-communications equipment

D-channel backup

Type of backup used with Non-Facility Associated Signaling (NFAS). A primary D-channel provides signaling for an NFAS D-channel group (two or more PRI facilities). A second D-channel, on a separate PRI facility of the NFAS D-channel group, is designated as backup for the D-channel. Failure of the primary D-channel causes automatic transfer of call-control signaling to the backup D-channel. The backup becomes the primary D-channel. When the failed channel returns to service, it becomes the backup D-channel.

DCIU

Data communications interface unit

DCO

Digital central office

DCP

Digital Communications Protocol

DCS

Distributed Communications System

DDC

Direct Department Calling

DDD

Direct Distance Dialing

delay-dial trunk

A trunk that allows dialing directly into a communications system (digits are received as they are dialed).

denying a request

Sending a negative acknowledgement (NAK), done by sending an FIE with a *return error* component (and a cause value). It should not be confused with the denial event report that applies to calls.

designated voice terminal

The specific voice terminal to which calls, originally directed to a certain extension, are redirected. Commonly used to mean the forwarded-to terminal when Call Forwarding All Calls is active.

dial-repeating trunks

A PBX tie trunk that is capable of handling PBX station-signaling information without attendant assistance.

dial-repeating tie trunk

A tie trunk that transmits called-party addressing information between two communications systems.

DID

See [Direct Inward Dialing \(DID\)](#)

digit conversion

A process used to convert specific dialed numbers into other dialed numbers.

digital

The representation of information by discrete steps. See also [analog](#).

digital communications protocol (DCP)

A proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64-kbps information (I-) channels and one 8-kbps signaling (S-) channel.

The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.

digital data endpoints

In DEFINITY ECS, devices such as the 510D terminal or the 515-type business communications terminal (BCT).

digital multiplexed interface (DMI)

An interface that provides connectivity between a communications system and a host computer or between two communications systems using DS1 24th-channel signaling. DMI provides 23 64-kbps data channels and 1 common-signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

digital signal level 0 (DS0)

A single 64-kbps voice channel. A DS0 is a single 64-kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 microseconds.

digital signal level 1 (DS1)

A single 1.544-Mbps (United States) or 2.048-Mbps (outside the United States) digital signal carried on a T1 transmission facility. A DS1 converter complex consists of a pair, one at each end, of DS1 converter circuit packs and the associated T1/E1 facilities.

digital terminal data module (DTDM)

An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a PDM and MPDM in that it converts RS-232C signals to DCP signals.

digital-to-analog converter (DAC)

A device that converts data in digital form to the corresponding analog signals. See also [analog-to-digital converter \(ADC\)](#).

digital transmission

A mode of transmission in which information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk

A circuit that carries digital voice and/or digital data in a telecommunications channel.

DIOD

Direct Inward and Outward Dialing

direct agent

A feature, accessed only via ASAI, that allows a call to be placed in a split queue but routed only to a specific agent in that split. The call receives normal ACD call treatment (for example, announcements) and is measured as an ACD call while ensuring that a particular agent answers.

Direct Extension Selection (DXS)

A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group-select button and a DXS button.

Direct Inward Dialing (DID)

A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance.

Direct Inward Dialing (DID) trunk

An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

Direct Outward Dialing (DOD)

A feature that allows a station user to gain access to the exchange network without attendant assistance.

disk drive

An electromechanical device that stores data on and retrieves data from one or more disks.

distributed communications system (DCS)

A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

DIVA

Data In/Voice Answer

DLC

Data line circuit

DLDM

Data-line data module

DMI

Digital-multiplexed interface

DND

Do not disturb

DNIS

Dialed-Number Identification Service

DOD

See [Direct Outward Dialing \(DOD\)](#)

domain

VDNs, ACD splits, and stations. The VDN domain is used for active-notification associations. The ACD-split domain is for active-notification associations and domain-control associations. The station domain is used for the domain-control associations.

domain-control association

A *Third Party Domain Control Request* capability initiates a unique CRV/link number combination, which is referred to as a domain-control association.

domain-controlled split

A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

domain-controlled station

A station for which a *Third_Party_Domain_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

domain-controlled station on a call

A station that is active on a call, and which provides event reports over one or two domain-control associations.

DOSS

Delivery Operations Support System

DOT

Duplication Option Terminal

DPM

Dial Plan Manager

DPR

Dual-port RAM

DS1

Digital Signal Level 1

DS1C

Digital Signal Level-1 protocol C

DS1 CONV

Digital Signal Level-1 converter

DSI

Digital signal interface

DSU

Data service unit

DTDM

Digital-terminal data module

DTE

Data-terminal equipment

DTGS

Direct Trunk Group Select

DTMF

Dual-tone multifrequency

DTS

Disk-tape system

deduplicated common control

Two processors ensuring continuous operation of a communications system. While one processor is online, the other functions as a backup. The backup processor goes online periodically or when a problem occurs.

duplication

The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

duplication option

A system option that duplicates the following: control carrier containing the SPE, EI circuit packs in carriers, fiber-optic cabling between port networks, and center-stage switch in a CSS-connected system.

DWBS

DEFINITY Wireless Business System

DXS

Direct extension selection

E

E1

A digital transmission standard that carries traffic at 2.048 Mbps. The E1 facility is divided into 32 channels (DS0s) of 64 kbps information. Channel 0 is reserved for framing and synchronization information. A D-channel occupies channel 16.

E & M

Ear and mouth (receive and transmit)

EA

Expansion archangel

EAL

Expansion archangel link

ear and mouth (E & M) signaling

Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through 2-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

EAS

See [Expert Agent Selection \(EAS\)](#)

- EBCDIC**
Extended Binary-Coded Decimal Interexchange Code
- ECC**
Error Correct Code
- ECMA**
European Computer Manufacturers Association
- EPF**
Electronic power feed
- EI**
Expansion interface
- EIA**
Electronic Industries Association
- EIA-232**
A physical interface specified by the EIA. EIA-232 transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet. EIA-232 replaces RS-232 protocol in some DEFINITY applications.
- electronic tandem network (ETN)**
A tandem tie-trunk network that has automatic call-routing capabilities based on the number dialed and the most preferred route available. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension.
- Electronics Industries Association (EIA)**
A trade association of the electronics industry that establishes electrical and functional standards.
- emergency transfer**
If a major system failure occurs, automatic transfer is initiated to a group of telephones capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called power-failure transfer.
- EMI**
Electromagnetic interference
- end-to-end signaling**
The transmission of touch-tone signals generated by dialing from a voice terminal to remote computer equipment. These digits are sent over the trunk as DTMF digits whether the trunk signaling type is marked as tone or rotary and whether the originating station is tone or rotary. Example: a call to a voice-mail machine or automated-attendant service. A connection is first established over an outgoing trunk. Then additional digits are dialed to transmit information to be processed by the computer equipment.
- enhanced private-switched communications service (EPSCS)**
An analog private telecommunications network based on the No. 5 crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.
- EPN**
Expansion-port network
- EPROM**
Erasable programmable read-only memory
- EPSCS**
Enhanced Private Switched Communications Services

ERL

Echo return loss

Erlang

A unit of traffic intensity, or load, used to express the amount of traffic needed to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also [CCS or hundred call seconds](#).

ESF

Extended superframe format

ESPA

European Standard Paging Access

ETA

Extended Trunk Access; also Enhanced Terminal Administration

ETN

Electronic tandem network

ETSI

European Telecommunications Standards Institute

expansion archangel (EAA)

A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network. The EA provides an interface between the EPN and its controlling switch-processing element.

expansion-archangel link (EAL)

A link-access function on the D-channel (LAPD) logical link that exists between a switch-processing element and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network.

expansion control cabinet

See [expansion control carrier](#).

expansion control carrier

A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called expansion control cabinet in a single-carrier cabinet.

expansion interface (EI)

A port circuit pack in a port network that provides the interface between a PN's TDM bus/ packet bus and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch-processing element.

expansion port network (EPN)

A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also [port network \(PN\)](#).

Expert Agent Selection (EAS)

A call center feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

extension-in

Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

extension-out

The work state that agents go into when they place (originate) a non-ACD call.

external measurements

Those ACD measurements that are made by the External CMS adjunct.

extension

A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

FAC

Feature Access Code

facility

A telecommunications transmission pathway and associated equipment.

facility-associated signaling (FAS)

Signaling for which a D-channel carries signaling only for those channels on the same physical interface.

FAS

Facility-associated signaling

FAT

Facility access trunk

FAX

Facsimile

FCC

Federal Communications Commission

FEAC

Forced Entry of Account Codes

feature

A specifically defined function or service provided by the system.

feature button

A labeled button on a telephone or attendant console used to access a specific feature.

FEP

Front-end processor

fiber optics

A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

FIC

Facility interface codes

fixed

A trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

flexible

A trunk allocation term. In the flexible allocation scheme, the time slots of a wideband call can occupy noncontiguous positions within a single T1 or E1 facility.

floating

A trunk allocation term. In the floating allocation scheme, the time slots of a wideband call are contiguous, but the position of the first time slot is not fixed.

FNPA

Foreign Numbering-Plan Area

foreign-exchange (FX)

A CO other than the one providing local access to the public telephone network.

foreign-exchange trunk

A telecommunications channel that directly connects the system to a CO other than its local CO.

foreign numbering-plan area code (FNPAC)

An area code other than the local area code, that must be dialed to call outside the local geographical area.

FRL

Facilities Restriction Level

FX

Foreign exchange

G

G3-MA

Generic 3 Management Applications

G3-MT

Generic 3 Management Terminal

G3r

Generic 3, RISC (Reduced Instruction Set Computer)

generalized route selection (GRS)

An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

glare

The simultaneous seizure of a 2-way trunk by two communications systems, resulting in a standoff.

GM

Group manager

GPTR

General-purpose tone receiver

grade of service

The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

ground-start trunk

A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

GRS

Generalized Route Selection

H

H0

An ISDN information transfer rate for 384-kbps data defined by CCITT and ANSI standards.

H11

An ISDN information transfer rate for 1536-kbps data defined by CCITT and ANSI standards.

H12

An ISDN information transfer rate for 1920-kbps data defined by CCITT and ANSI standards.

handshaking logic

A format used to initiate a data connection between two data module devices.

hertz (Hz)

A unit of frequency equal to one cycle per second.

high-reliability system

A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in R5r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also [duplicated common control](#), [duplication](#), [duplication option](#), and [critical-reliability system](#).

HNP

See [home numbering-plan area code \(HNP\)](#).

holding time

The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code (HNP)

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

hop

Nondirect communication between two switch communications interfaces (SCI) where the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

host computer

A computer, connected to a network, that processes data from data-entry devices.

hunt group

A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension reroutes to an idle extension in the group. See also [ACD work mode](#).

Hz

See [hertz \(Hz\)](#).

I

I1

The first information channel of DCP.

I2

The second information channel of DCP.

I2 Interface

A proprietary interface used for the DEFINITY Wireless Business System for the radio-controller circuit packs. Each interface provides communication between the radio-controller circuit pack and up to two wireless fixed bases.

I3 Interface

A proprietary interface used for the DEFINITY Wireless Business System for the cell antenna units. Each wireless fixed base can communicate to up to four cell antenna units.

IAS

Inter-PBX Attendant Service

ICC

Intercabinet cable or intercarrier cable

ICD

Inbound Call Director

ICDOS

International Customer-Dialed Operator Service

ICHT

Incoming call-handling table

ICI

Incoming call identifier

ICM

Inbound Call Management

IDDD

International Direct Distance Dialing

IDF

Intermediate distribution frame

IE

Information element

immediate-start tie trunk

A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

IMT

Intermachine trunk

in

Inch

INADS

Initialization and Administration System

incoming gateway

A PBX that routes an incoming call on a trunk *not* administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

information exchange

The exchange of data between users of two different systems, such as the switch and a host computer, over a LAN.

Information Systems Network (ISN)

A WAN and LAN with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

INS

ISDN Network Service

inside call

A call placed from one telephone to another within the local communications system.

Integrated Services Digital Network (ISDN)

A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)

The interface between a communications system and terminal that includes two 64-kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. ISDN-BRI also includes 48 kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)

The interface between multiple communications systems that in North America includes 24 64-kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbps. The most common arrangement of channels in ISDN-PRI is 23 64-kbps B-channels for transmitting voice and data and 1 64-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. With nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#).

intercept tone

An tone that indicates a dialing error or denial of the service requested.

interface

A common boundary between two systems or pieces of equipment.

internal call

A connection between two users within a system.

International Telecommunications Union (ITU)

Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including ISDN. ITU members are from telecommunications companies and organizations around the world. See also [BX.25](#).

International Telegraph and Telephone Consultative Committee

See [International Telecommunications Union \(ITU\)](#).

interflow

The ability for calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls feature.

intraflow

The ability for calls to redirect to other splits on the same PBX on a conditional or unconditional basis using call coverage busy, don't answer, or all criteria.

internal measurements

BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

in-use lamp

A red light on a multiappearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

INWATS

Inward Wide Area Telephone Service

IO

Information outlet

ISDN

See [Integrated Services Digital Network \(ISDN\)](#).

ISDN Gateway (IG)

A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

ISDN trunk

A trunk administered for use with ISDN-PRI. Also called ISDN facility.

ISDN-PRI terminal adapter

An interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

IS/DTT

Integrated Services/digital tie trunk

ISN

Information Systems Network

ISO
International Standards Organization

ISV
Independent software vendor

ITP
Installation test procedure

ITU
International Telecommunications Union

IXC
Interexchange carrier code

K

kHz
Kilohertz

kbps
Kilobits per second

kbyte
Kilobyte

kg
Kilogram

L

LAN
Local area network

LAP-D
Link Access Procedure on the D-channel

LAPD
Link Access Procedure data

LATA
Local access and transport area

lb
Pound

LBO
Line buildout

LDN
Listed directory number

LDS
Long-distance service

LEC

Local exchange carrier

LED

See [light-emitting diode \(LED\)](#).

light-emitting diode (LED)

A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, the alarm status of circuit packs, and the activation of telephone features.

lightwave transceiver

Hardware that provides an interface to fiber-optic cable from port circuit packs and DS1 converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

line

A transmission path between a communications system or CO switching system and a voice terminal or other terminal.

line appearance

See [appearance](#).

line buildout

A selectable output attenuation is generally required of DTE equipment because T1 circuits require the last span to lose 15–22.5 dB.

line port

Hardware that provides the access point to a communications system for each circuit associated with a telephone or data terminal.

link

A transmitter-receiver channel that connects two systems.

link-access procedure on the D-channel (LAPD)

A link-layer protocol on the ISDN-BRI and ISDN-PRI data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

LINL

Local indirect neighbor link

local area network (LAN)

A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

logical link

The communications path between a processor and a BRI terminal.

loop-start trunk

A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

LSU

Local storage unit

LWC

Leave Word Calling

M

MAC

Medium access

MADU

Modular asynchronous data unit

main distribution frame (MDF)

A device that mounts to the wall inside the system equipment room. The MDF provides a connection point from outside telephone lines to the PBX switch and to the inside telephone stations.

main-satellite-tributary

A private network configuration that can either stand alone or access an ETN. A main switch provides interconnection, via tie trunks, with one or more subtending switches, called satellites; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A tributary switch is connected to the main switch via tie trunks, but has its own attendant positions and LDN.

maintenance

Activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

management terminal

The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

major alarm

An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

Manual-In work mode

One of four agent work modes: the mode in which an agent is ready to process another call manually. See [Auto-In Work mode](#) for a contrast.

MAP

Maintenance action process

MAPD

Multiapplication platform for DEFINITY

MA-UII

Message-Associated User-to-User Signaling

Mbps

Megabits per second

M-Bus

Memory bus

Mbyte

Megabyte

MCC

Multicarrier cabinet

MCS

Message Center Service

MCT

Malicious Call Trace

MCU

Multipoint control unit

MDF

Main distribution frame

MDM

Modular data module

MDR

Message detail record

MEM

Memory

memory

A device into which information can be copied and held, and from which information can later be obtained.

memory shadowing link

An operating-system condition that provides a method for memory-resident programs to be more quickly accessed, allowing a system to reboot faster.

message center

An answering service that supplies agents to and stores messages for later retrieval.

message center agent

A member of a message-center hunt group who takes and retrieves messages for voice-terminal users.

MET

Multibutton electronic telephone

MF

Multifrequency

MFB

Multifunction board

MFC

Multifrequency code

MHz

Megahertz

MIM

Management information message

minor alarm

An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

MIPS

Million instructions per second

MIS

Management information system

MISCID

Miscellaneous identification

MMCS

Multimedia Call Server

MMCH

Multimedia call handling

MMI

Multimedia interface

MMS

Material Management Services

MO

Maintenance object

modem

A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

modem pooling

A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

modular processor data module (MPDM)

A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS-232C, RS-449, and V.35) to customer-provided data terminal equipment (DTE). See also [processor data module \(PDM\)](#).

modular trunk data module (MTDM)

A trunk data module that can be configured to provide several kinds of interfaces (RS-232, RS-449, and V.35) to customer-provided data terminal equipment.

modulator-demodulator

See [modem](#).

monitored call

See [active-notification call](#).

MOS

Message-oriented signaling

MPDM

Modular processor data module

MS

Message server

ms

Millisecond

MS/T

Main satellite/tributary

MSA

Message servicing adjunct

MSG

Message service

MSL

Material stocking location

MSM

Modular System Management

MSS

Mass storage system

MSSNET

Mass storage/network control

MT

Management terminal

MTDM

Modular trunk data module

MTP

Maintenance tape processor

MTT

Multitasking terminal

multiappearance voice terminal

A terminal equipped with several call-appearance buttons for the same extension, allowing the user to handle more than one call on that same extension at the same time.

Multicarrier cabinet

A structure that holds one to five carriers. See also [single-carrier cabinet](#).

Multifrequency Compelled (MFC) Release 2 (R2) signaling

A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. R2 designates signaling used in the United States and in countries outside the United States.

multiplexer

A device used to combine a number of individual channels into a single common bit stream for transmission.

multiplexing

A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also [time-division multiplexing \(TDM\)](#).

multirate

The new N x DS0 service (see N x DS0).

MWL

Message-waiting lamp

N

N+1

Method of determining redundant backup requirements. Example: if four rectifier modules are required for a DC-powered single-carrier cabinet, a fifth rectifier module is installed for backup.

N x DS0

N x DS0, equivalently referred to as N x 64 kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data-rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

NANP

North American Numbering Plan

narrowband

A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

native terminal support

A predefined terminal type exists in switch software, eliminating the need to alias the terminal (that is, manually map call appearances and feature buttons onto some other natively supported terminal type).

NAU

Network access unit

NCA/TSC

Noncall-associated/temporary-signaling connection

NCOSS

Network Control Operations Support Center

NCSO

National Customer Support Organization

NEC

National Engineering Center

NEMA

National Electrical Manufacturer's Association

NETCON

Network-control circuit pack

network

A series of points, nodes, or stations connected by communications channels.

network-specific facility (NSF)

An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

network interface

A common boundary between two systems in an interconnected group of systems.

NFAS

See [Nonfacility-associated signaling \(NFAS\)](#).

NI

Network interface

NID

Network Inward Dialing

NM

Network management

NN

National number

node

A switching or control point for a network. Nodes are either tandem (they receive signals and pass them on) or terminal (they originate or terminate a transmission path).

Nonfacility-associated signaling (NFAS)

A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an ISDN-PRI. If D-channel backup is not used, one facility is configured with a D-channel, and the other facilities that share the D-channel are configured without D-channels. If D-channel backup is used, two facilities are configured to have D-channels (one D-channel on each facility), and the other facilities that share the D-channels are configured without D-channels.

NPA

Numbering-plan area

NPE

Network processing element

NQC

Number of queued calls

NSE

Night-service extension

NSU

Network sharing unit

null modem cable

Special wiring of an RS-232-C cable such that a computer can talk to another computer (or to a printer) without a modem.

NXX

Public-network office code

O

OA

Operator assisted

occurrence

See [appearance](#).

OCM

Outbound Call Management

offered load

The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

ONS

On-premises station

OPS

Off-premises station

OPX

Off-premises extension

OQT

Oldest queued time

OSHA

Occupational Safety and Health Act

OSI

Open Systems Interconnect

OSS

Operations Support System

OSSI

Operational Support System Interface

OTDR

Optical time-domain reflectometer

othersplit

The work state that indicates that an agent is currently active on another split's call, or in ACW for another split.

OTL

Originating Test Line

OTQ

Outgoing trunk queuing

outgoing gateway

A PBX that routes an incoming call on a trunk administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

P

PACCON

Packet control

packet

A group of bits (including a message element, which is the data, and a control information element (IE), which is the header) used in packet switching and transmitted as a discrete unit. In each packet, the message element and control IE are arranged in a specified format. See also [packet bus](#) and [packet switching](#).

packet bus

A wide-bandwidth bus that transmits packets.

packet switching

A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called packets, each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet. On completion of the transmission, the channel is made available for the transfer of other packets. See also [BX.25](#) and [packet](#).

PAD

Packet assembly/disassembly

paging trunk

A telecommunications channel used to access an amplifier for loudspeaker paging.

party/extension active on call

A party is on the call if he or she is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

PBX

Private branch exchange

PC

See [personal computer \(PC\)](#).

PCM

See [pulse-code modulation \(PCM\)](#).

PCOL

Personal central-office line

PCOLG

Personal central-office line group

PCS

Permanent switched calls

PDM

See [processor data module \(PDM\)](#).

PDS

Premises Distribution System

PE

Processing element

PEC

Price element code

PEI

Processor element interchange

personal computer (PC)

A personally controllable microcomputer.

PGATE

Packet gateway

PGN

Partitioned group number

PI

Processor interface

PIB

Processor interface board

pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

PIDB

Product image database

PKTINT

Packet interface

PL

Private line

PLS

Premises Lightwave System

PMS

Property Management System

PN

Port network

PNA

Private network access

POE

Processor occupancy evaluation

POP

Point of presence

port

A data- or voice-transmission access point on a device that is used for communicating with other devices.

port carrier

A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet in a single-carrier cabinet.

port network (PN)

A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in DEFINITY ECS. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also [expansion port network \(EPN\)](#) and [processor port network \(PPN\)](#).

port-network connectivity

The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

PPM

1. Parts per million
2. Periodic pulse metering

PPN

See [Primary Rate Interface \(PRI\)](#).

PRI

See [Primary Rate Interface \(PRI\)](#).

primary extension

The main extension associated with the physical voice or data terminal.

Primary Rate Interface (PRI)

A standard ISDN frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

PRI endpoint (PE)

The wideband switching capability introduces PRI endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension. Endpoint applications have call-control capabilities over PRI endpoints.

principal

A terminal that has its primary extension bridged on one or more other terminals.

principal (user)

A person to whom a telephone is assigned and who has message-center coverage.

private network

A network used exclusively for the telecommunications needs of a particular customer.

private network office code (RNX)

The first three digits of a 7-digit private network number.

processor carrier

See [control carrier](#).

processor data module (PDM)

A device that provides an RS-232C DCE interface for connecting to data terminals, applications processors (APs), and host computers, and provides a DCP interface for connection to a communications system. See also [modular processor data module \(MPDM\)](#).

processor port network (PPN)

A port network controlled by a switch-processing element that is directly connected to that PN's TDM bus and LAN bus. See also [port network \(PN\)](#).

processor port network (PPN) control carrier

A carrier containing the maintenance circuit pack, tone/clock circuit pack, and SPE circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

PROCR

Processor

Property Management System (PMS)

A stand-alone computer used by lodging and health-services organizations for services such as reservations, housekeeping, and billing.

protocol

A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

PSC

Premises service consultant

PSDN

Packet-switch public data network

PT

Personal terminal

PTC

Positive temperature coefficient

PTT

Postal Telephone and Telegraph

public network

The network that can be openly accessed by all customers for local and long-distance calling.

pulse-code modulation (PCM)

An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

Q

QPPCN

Quality Protection Plan Change Notice

QSIG

A set of open standards for Enterprise Networking. QSIG is a protocol defining message exchanges (signalling) at the "Q" reference point between two PBXs.

quadrant

A group of six contiguous DS0s in fixed locations on an ISDN-PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN-PRI facility (30B + D).

queue

An ordered sequence of calls waiting to be processed.

queuing

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

R

RAM

See [random-access memory \(RAM\)](#).

random-access memory (RAM)

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

RBS

Robbed-bit signaling

RC

Radio controller

RCL

Restricted call list

read-only memory (ROM)

A storage arrangement primarily for information-retrieval applications.

recall dial tone

Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

redirection criteria

Information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

Redirection on No Answer

An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

remote home numbering-plan area code (RHNPA)

A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed CO code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

Remote Operations Service Element (ROSE)

A CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

REN

Ringer equivalency number

reorder tone

A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available.

report scheduler

Software that is used in conjunction with the system printer to schedule the days of the week and time of day that the desired reports are to be printed.

RFP

Request for proposal

RHNPA

See [remote home numbering-plan area code \(RHNPA\)](#).

RINL

Remote indirect neighbor link

RISC

Reduced-instruction-set computer

RLT

Release-link trunk

RMATS

Remote Maintenance, Administration, and Traffic System

RNX

Route-number index (private network office code)

ROM

See [read-only memory \(ROM\)](#).

ROSE

See [Remote Operations Service Element \(ROSE\)](#).

RPN

Routing-plan number

RS-232C

A physical interface specified by the Electronic Industries Association (EIA). RS-232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

RS-449

Recommended Standard 449

RSC

Regional Support Center

S

S1

The first logical signalling channel of DCP. The channel is used to provide signaling information for DCP's I1 channel.

S2

The second logical signaling channel of DCP. The channel is used to provide signaling information for DCP's I2 channel.

SABM

Set Asynchronous Balance Mode

SAC

Send All Calls

SAKI

See [sanity and control interface \(SAKI\)](#).

sanity and control interface (SAKI)

A custom VLSI microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

SAT

System access terminal

SCC

1. See [single-carrier cabinet](#).
2. Serial communications controller

SCD

Switch-control driver

SCI

Switch communications interface

SCO

System control office

SCOTCH

Switch Conferencing for TDM Bus in Concentration Highway

SCSI

See [small computer system interface \(SCSI\)](#).

SDDN

Software-Defined Data Network

SDI

Switched Digital International

SDLC

Synchronous data-link control

SDN

Software-defined network

SFRL

Single-frequency return loss

SID

Station-identification number

simplex system

A system that has no redundant hardware.

simulated bridged appearance

The same as a temporary bridged appearance; allows the terminal user (usually the principal) to bridge onto a call that had been answered by another party on his or her behalf.

single-carrier cabinet

A combined cabinet and carrier unit that contains one carrier. See also [Multicarrier cabinet](#).

single-line voice terminal

A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

SIT

Special-information tones

small computer system interface (SCSI)

An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

SMDR

Station Message Detail Recording

SN

Switch Node

SNA

Systems Network Architecture

SNC

Switch Node Clock

SNI

Switch Node Interface

SNMP

Simple Network Management Protocol

software

A set of computer programs that perform one or more tasks.

SPE

Switch Processing Element

SPID

Service Profile Identifier

split

See [ACD work mode](#).

split condition

A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

split number

The split's identity to the switch and BCMS.

split report

A report that provides historical traffic information for internally measured splits.

split (agent) status report

A report that provides real-time status and measurement data for internally measured agents and the split to which they are assigned.

SSI

Standard serial interface

SSM

Single-site management

SSV

Station service

ST3

Stratum 3 clock board

staffed

Indicates that an agent position is logged in. A staffed agent functions in one of four work modes: Auto-In, Manual-In, ACW, or AUX-Work.

STARLAN

Star-Based Local Area Network

Station Message Detail Recording (SMDR)

An obsolete term now called CDR — a switch feature that uses software and hardware to record call data. See [Call Detail Recording \(CDR\)](#).

standard serial interface (SSI)

A communications protocol developed for use with 500-type business communications terminals (BCTs) and 400-series printers.

status lamp

A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

stroke counts

A method used by ACD agents to record up to nine customer-defined events per call when CMS is active.

SVN

Security-violation notification

switch

Any kind of telephone switching system. See also [communications system](#).

switchhook

The buttons located under the receiver on a voice terminal.

switch-node (SN) carrier

A carrier containing a single switch node, power units, and, optionally, one or two DS1 converter circuit packs. An SN carrier is located in a center-stage switch.

switch-node (SN) clock

The circuit pack in an SN carrier that provides clock and maintenance alarm functions and environmental monitors.

switch-node interface (SNI)

The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

switch-node link (SNL)

The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two SNI circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI's electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, DS1 converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

switch-processing element (SPE)

A complex of circuit packs (processor, memory, disk controller, and bus-interface cards) mounted in a PPN control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more EPNs.

SXS

Step-by-step

synchronous data transmission

A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times. See also [association](#).

SYSAM

System Access and Administration

system administrator

The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the Management Terminal. The switch requires a special login, referred to as the system administrator login, to gain access to system-administration capabilities.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

system-status report

A report that provides real-time status information for internally measured splits.

system manager

A person responsible for specifying and administering features and services for a system.

system reload

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

T1

A digital transmission standard that in North America carries traffic at the DS1 rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps. These 24 channels, with an overall digital rate of 1.536 Mbps, and an 8-kbps framing and synchronization channel make up the 1.544-Mbps transmission. When a D-channel is present, it occupies channel 24. T1 facilities are also used in Japan and some Middle-Eastern countries.

TAAS

Trunk Answer from Any Station

TABS

Telemetry asynchronous block serial

TAC

Trunk-access code

tandem switch

A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

tandem through

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

tandem tie-trunk network (TTTN)

A private network that interconnects several customer switching systems.

TC

Technical consultant

TCM

Traveling class mark

TDM

See [time-division multiplexing \(TDM\)](#).

TDR

Time-of-day routing

TEG

Terminating extension group

terminal

A device that sends and receives data within a system. See also [administration terminal](#).

tie trunk

A telecommunications channel that directly connects two private switching systems.

time-division multiplex (TDM) bus

A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

time-division multiplexing (TDM)

Multiplexing that divides a transmission channel into successive time slots. See also [multiplexing](#).

time interval

The period of time, either one hour or one-half hour, that BCMS measurements are collected for a reports.

time slice

See [time interval](#).

time slot

64 kbps of digital information structured as eight bits every 125 microseconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64-kbps unit on the TDM bus or fiber connection between port networks.

time slot sequence integrity

The situation whereby the N octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

to control

An application can invoke *Third Party Call Control* capabilities using either an adjunct-control or domain-control association.

to monitor

An application can receive *event reports* on an active-notification, adjunct-control, or domain-control association.

TOD

Time of day

tone ringer

A device with a speaker, used in electronic voice terminals to alert the user.

TOP

Task-oriented protocol

trunk

A dedicated telecommunications channel between two communications systems or COs.

trunk allocation

The manner in which trunks are selected to form wideband channels.

trunk-data module

A device that connects off-premises private-line trunk facilities and DEFINITY ECS. The trunk-data module converts between the RS-232C and the DCP, and can connect to DDD modems as the DCP member of a modem pool.

trunk group

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

TSC

Technical Service Center

TTI

Terminal translation initialization

TTR

Touch-tone receiver

TTT

Terminating trunk transmission

TTTN

See [tandem tie-trunk network \(TTTN\)](#).

TTY

Teletypewriter

U

UAP

Usage-allocation plan

UART

Universal asynchronous transmitter

UCD

Uniform call distribution

UCL

Unrestricted call list

UDP

See [Uniform Dial Plan \(UDP\)](#).

UL

Underwriter Laboratories

UM

User manager

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a DCS or main-satellite-tributary system.

UNMA

Unified Network Management Architecture

UNP

Uniform numbering plan

UPS

Uninterruptible power supply

USOP

User service-order profile

UUCP

UNIX-to-UNIX Communications Protocol

UUI

User-to-user information

V

VAR

Value-added reseller

VDN

See [vector directory number \(VDN\)](#).

vector directory number (VDN)

An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

vector-controlled split

A hunt group or ACD split administered with the vector field enabled. Access to such a split is possible only by dialing a VDN extension.

VIS

Voice Information System

VLSI

Very-large-scale integration

VM

Voltmeter

VNI

Virtual nodepoint identifier

voice terminal

A single-line or multiappearance telephone.

W

WATS

See [Wide Area Telecommunications Service \(WATS\)](#).

WCC

World-Class Core

WCR

World-Class Routing

WCTD

World-Class Tone Detection

WFB

Wireless fixed base

Wide Area Telecommunications Service (WATS)

A service in the United States that allows calls to certain areas for a flat-rate charge based on expected usage.

wideband

A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are wideband.

wideband access endpoint

Access endpoints, extended with wideband switching to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

wink-start tie trunk

A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

work mode

One of four states (Auto-In, Manual-In, ACW, AUX-Work) that an ACD agent can be in. Upon logging in, an agent enters AUX-Work mode. To become available to receive ACD calls, the agent enters Auto-In or Manual-In mode. To do work associated with a completed ACD call, an agent enters ACW mode.

work state

An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split of which it is a member. Valid work states are Avail, Unstaffed, AUX-Work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (example: when a call is answered or abandoned, or the agent changes work modes). The BCMS feature monitors work states and uses this information to provide BCMS reports.

write operation

The process of putting information onto a storage medium, such as a hard disk.

WSA
Waiting session accept

WSS
Wireless Subscriber System

Z

ZCS
Zero Code Suppression

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